

SOUTHWEST ALASKA TRANSPORTATION PLAN

Final Edition

**An approved component of the Alaska Statewide
Transportation Plan**



Prepared for the

Alaska Department of Transportation and Public Facilities

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November 25, 2002

Greetings:

I am pleased to present the *Southwest Alaska Transportation Plan*, the latest publication in a series of area transportation plans for particular regions of the state of Alaska.

When we began envisioning a Southwest Alaska Transportation Plan in 1997, we at the Department of Transportation and Public Facilities had a notion of what we were up against. We knew we had to figure out how we could best share the *Tustumena* between its Southwest Alaska service and its service to Prince William Sound communities. We knew in the near-term we could expect ever-dwindling operation budgets with which to maintain the region's many airports. And we knew that the transportation facilities we maintained were critical to survival of the communities they served, and that reduced service was unacceptable to our constituents. What we didn't know was how to turn things around.

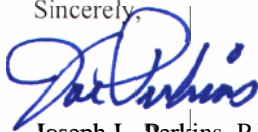
The planning process helped us prioritize the region's transportation infrastructure and see how transportation links could contribute to Southwest Alaska's economy by improving transportation efficiencies. With the region's residents, we worked to map out a desirable network of routes linking communities. Then we applied transportation and economic analysis to see how these might be developed in a sustainable fashion. The plan's recommendations are modest; but they are important first steps, and they are achievable.

The plan was developed using an extensive public involvement process. This included an Advisory Committee made up of community leaders. Their interaction with one another enabled them to focus on transportation solutions that brought benefits to the entire region rather than only to their individual communities. Additionally we maintained a website on the plan where we responded to inquiries from the general public and provided technical documents for viewing by interested individuals.

The plan recommends investment in a number of port facilities, and in a few critical road links. These links permit consolidation of service between multiple communities, encourage intermodal efficiencies, and promote regional economic diversification. In addition, the plan furthers a continuing effort to upgrade all state-owned and operated airports to approved standards of width, length, lighting and navigation in order to improve overall aviation safety. By far the great majority of future transportation projects in the region will continue to be airport-related.

This plan draws its authority from Alaska Statute 44.42.050 and is an element of the Statewide Transportation Plan as defined in 23 CFR 450.214. I am proud to hereby authorize the Southwest Alaska Transportation Plan.

Sincerely,



Joseph L. Perkins, P.E.
Commissioner

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Preface

This document presents the Southwest Alaska Transportation Plan, which culminates a four-year effort to define and select a blueprint for the region's long-term transportation future. The Alaska Department of Transportation and Public Facilities (DOT&PF), as the State agency responsible for highways, ferries, airports and ports and harbors, undertook this effort to ensure that future investments in the region's transportation are in the best overall public interest.

This plan is one of a series of regional, multi-modal transportation plans being undertaken for Alaskan communities. It forms part of the Statewide Transportation Plan and presents the project recommendations for the Southwest Alaska region. This plan draws its authority from Alaska Statute 44.42.050, which requires DOT&PF to prepare plans for transportation facilities, and is also an element of the Federally-required Statewide Transportation Plan as defined in 23 CFR 450.214. The Federal requirement is important, as Federal transportation funds must be allocated consistent with transportation plans prepared following Federal guidelines.

The Southwest Alaska Transportation Plan is not about changing services and facilities for the sake of change. Rather, it reflects a broad-based effort that seeks to improve year-round mobility and access for residents, and to broaden and diversify the region's transportation network. This effort necessarily explored potential road, rail, aviation and marine transportation options in seeking to lower the costs of moving goods and remove barriers to regional economic development and coordination.

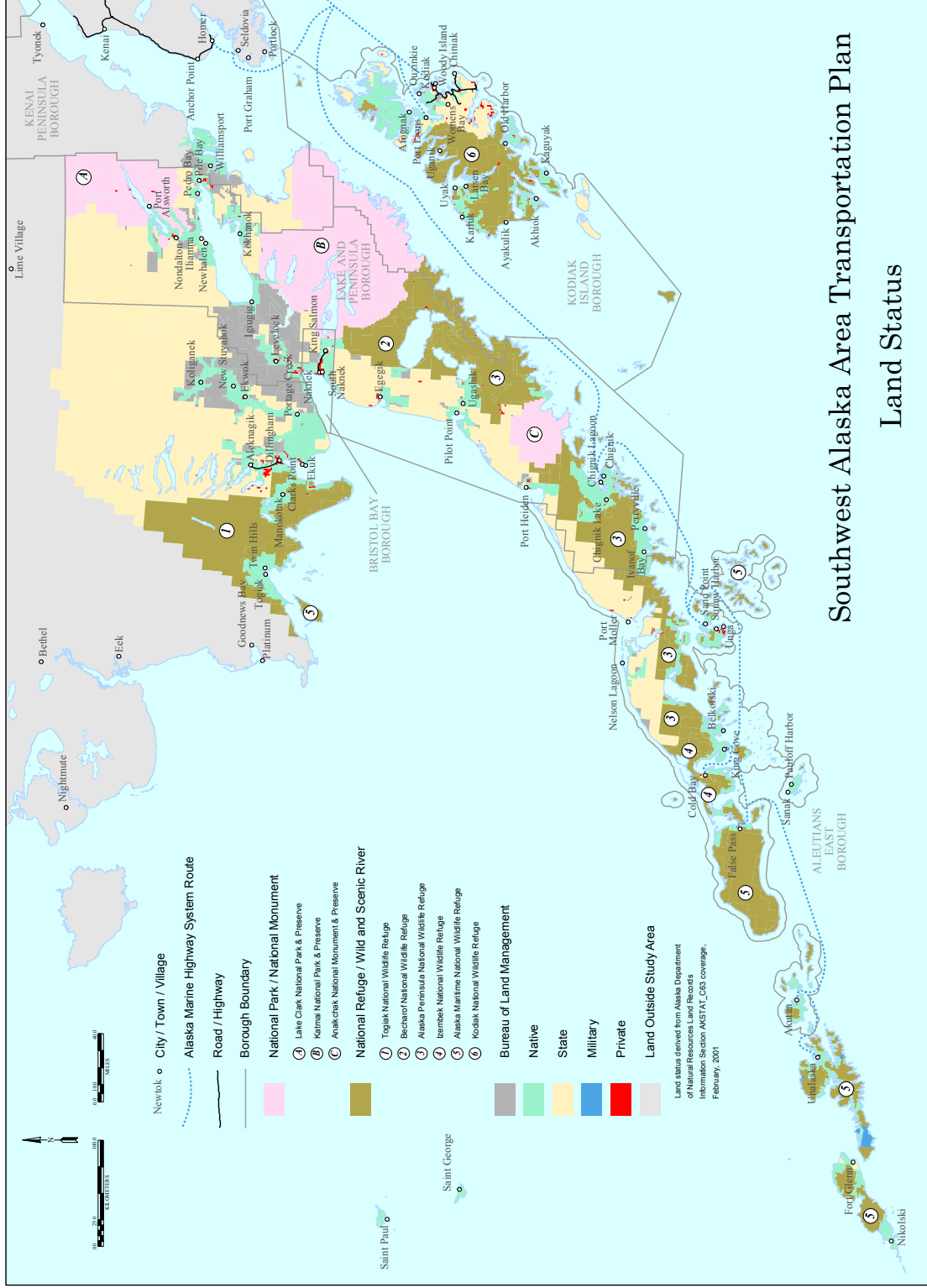
Because of the remote and largely undeveloped character of the region, conventional methods for determining the value of system improvements used in typical urban and rural settings were not helpful. Rather, the planning team examined the region's geographical, economic and socio-political characteristics and envisioned the corridors that would link the communities together. The multi-modal analysis then proceeded to determine the most economical sequence for establishing infrastructure and the most suitable facilities to employ.

We concede that some infrastructure improvements recommended in these pages may not "pay for themselves" using typical methods used to assess costs and benefits over a 20-year timeframe. The question is much more basic: "What transportation infrastructure is needed to provide a stable economic climate in the region, and how is the best way to go about investing in it?" Transportation is intrinsic to the region's economic vitality, providing the necessary mobility to make the difference between self-sufficiency and dependency. The Southwest Alaska Transportation Plan begins the long process of infrastructure development in the region.

This infrastructure will lower the per-person costs of government services, enhance the region's economic outlook, and improve the quality of life and future of the region's families and businesses.

This document does not portray the sum total of the planning effort, but rather a summation of the findings and key processes. The supporting technical memoranda prepared over the course of planning are numerous, each representing the findings up to the point when it was published. Due to the limited planning budget, the technical memoranda were not revised to bring them up-to-date, but new findings were incorporated into each subsequent product. These documents can be accessed and downloaded through DOT&PF's website (<http://www.dot.state.ak.us>) or can be sent in CD form upon written request.

Figure P1: Southwest Alaska Transportation Plan Land Status



Executive Summary

The Southwest Alaska Transportation Plan aims to provide the framework for a sustainable transportation system that will improve the ability of residents to move between communities in Southwest Alaska. Removing restrictions to economic growth is also a goal. The plan prioritizes key projects in order to bring real benefits to both region and state. In doing so, it does not simply look at the benefits accrued by community, but rather to the aggregate of communities in the region and to the state as a whole.

Thus it employs a systematic approach to developing the region's transportation network, and this approach involves a vision that extends beyond what is economically feasible within the constraints of a 20-year transportation plan. The plan's recommendations contains eight key components:

Corridor delineation

This component involves the denoting of several actual and potential transportation corridors in order to:

- Establish the validity of a transportation interest, and to
- Protect and ensure consideration of that interest in current and future land use decisions.

Many of these corridors are not feasible today. The purpose for the delineation is to establish each corridor's future importance to the region.

Selected community linkages

These include projects that provide a necessary element to completing the surface link between community pairs. In the near term, the plan recommends the following projects:

- Williamsport - Pile Bay roadway improvements
- Kodiak road to launch complex
- Chigniks intertie
- King Cove - Cold Bay connection

Additionally, the plan recommends a unique study combining airport planning and roadway analysis to determine the net benefit of some potential surface links and their impact on air travel. This study is needed to assist in assessing the impact of a road link on air traffic and aviation facility use. It will help determine a fair and appropriate role of local and state investment:

- Naknek/South Naknek/King Salmon road link and area aviation needs study

Finally, the plan suggests triggers for reevaluation of lower-priority links in each corridor that could lead to their development within the 20-year period considered by this plan.

Intermodal development

The plan recommends project sets with potentially high impact because they immediately improve the economics of transportation connectivity from the region to its markets. These project sets include:

- Williamsport - Pile Bay (port and roadway improvements)
- Chignik (port improvements, roadway intertie, airport master plan)

Improved Marine Highway service

This element is a by-product of Prince William Sound Transportation Plan implementation, releasing *M/V Tustumena* from service within Prince William Sound and allowing more of its service hours to be devoted to Southwest Alaska. A necessary part of this element includes dock improvements needed for *Tustumena* operations, including these facilities:

- Kodiak
- Chignik
- Unalaska.

Aviation system improvements

The plan endorses a minimum standard for community airport runway length (3300 ft). It includes an analysis of projected regional aviation needs. Its purpose is to provide an indication of when updated individual airport assessments should be undertaken in anticipation of needed runway lengthening. In Southwest Alaska and elsewhere in the state there is a recurring conflict between community desires for larger airport facilities and the limitations of state funds for maintaining and operating them. The plan provides a methodology for resolving these issues at the individual airport level. This approach improves planning flexibility, permitting community input to be factored into airport improvement projects and the additional costs appropriately assessed by local-state agreement.

Port and harbor improvements

The plan seeks to draw attention to needed port improvements, in particular those that provide an intermodal complement to key transportation infrastructure. Of note, the plan discusses Williamsport navigation improvements and dock facility, Pile Bay dock and boat launch facility, Chignik public dock facility, Unalaska city dock improvements, and Kodiak city dock improvements.

Marked winter trail system

This element provides a system of trail markers that permits safe travel by snowmachine between Bristol Bay communities during the winter months.

Validation of previous approved and ongoing projects

Finally, the plan recognizes several ongoing road and aviation projects in various stages of development. These projects are recognized for their significant role in enhancing the region's transportation.

- Dillingham - Aleknagik Road and Wood River Bridge
- Iliamna - Nondalton Road

Each of these eight components is discussed in more detail in the following pages.

Corridor Delineation

Southwest Alaska's lack of transportation infrastructure leaves most communities isolated and disconnected from each other. The unifying transportation system is a collection of small airstrips at each community maintained primarily by the State of Alaska at considerable expense. But the system is not self-sufficient. Most communities are unable to afford the expense of maintaining their own airstrips. Air travel for residents is very expensive and the bypass mail system employed by the U.S. Postal Service operates at deficit. Clearly this "system" is necessary for the communities supported by it, but it lacks the ability, by itself, to attain a degree of self-sufficiency.

The purpose of corridor delineation is to recognize the patterns of existing travel and desired travel in the region and to establish and protect the surface transportation "highways" that would best serve the region's long-term social and economic infrastructure needs. The plan recognizes four primary corridors, shown in Figure S1:

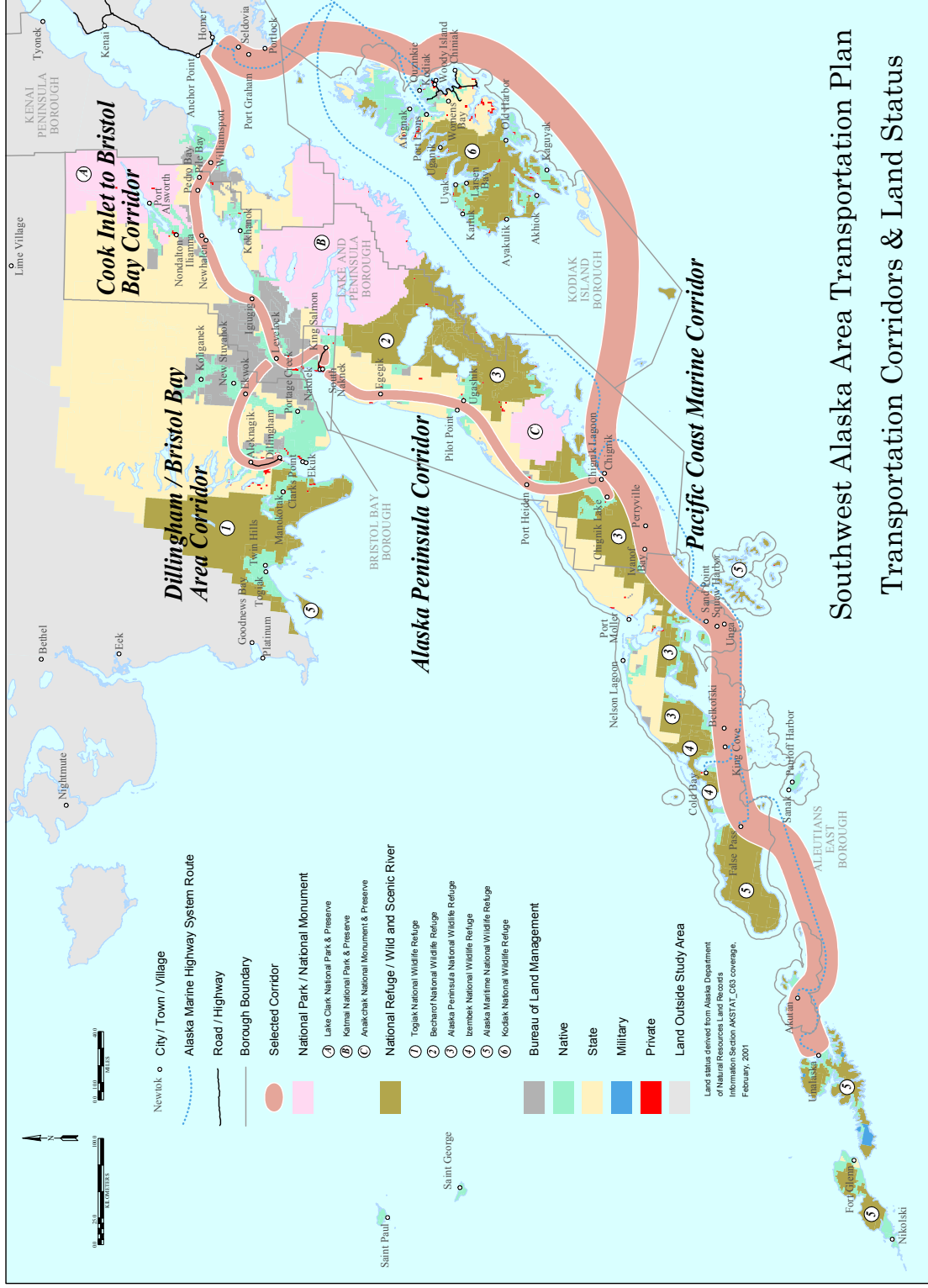
- Pacific Coast Marine corridor
- Cook Inlet to Bristol Bay corridor
- Alaska Peninsula corridor
- Dillingham/Bristol Bay Area corridor

A number of historic and traditional use corridors documented in earlier studies remain significant to individual communities. For example, the *Bristol Bay Area Plan* (Alaska Dept of Natural Resources, 1984) specifically identified three "preferred corridors" (Pilot Point- Wide Bay, Port Heiden-Kujulik Bay, and Port Moller-Balboa Bay) as well as the King Cove-Cold Bay road. Delineating the four key regional transportation corridors in no way invalidates these earlier studies, and there remains a continued state interest in them.

Pacific Coast Marine Corridor

The Pacific Coast Marine Corridor connects the communities of Kodiak Island, the fishing communities on the eastern side of the Alaska Peninsula, and the port of Dutch Harbor. This corridor ties into the Alaska road/rail network through the port of Homer. As the name implies, this corridor serves marine transportation needs, including tug and barge service, the Alaska Marine Highway System, and commercial fishing interests.

Figure S1. Transportation Corridors



Cook Inlet to Bristol Bay Corridor

The Cook Inlet to Bristol Bay Corridor connects the rich seafood resources and communities in Bristol Bay, as well as the Iliamna Lake communities, with resupply, support and market centers in the Alaskan railbelt. It consists of a marine segment (Cook Inlet), intermodal transfer location at Williamsport, and then primarily overland and riverine routes along Iliamna Lake and the Kvichak River valley to the port town of Naknek on Bristol Bay. Its function is primarily logistical. Transportation improvements along this corridor would lower the cost of transport, thus yielding benefits to the quality of life of residents and helping to stimulate economic growth.

Alaska Peninsula Corridor

The Alaska Peninsula Corridor is an overland corridor linking the communities of the Alaska Peninsula from Ivanof Bay to Naknek. The key facility in this corridor is the port at Chignik, from which fuel and supplies can be disbursed to other communities via road connection. From Chignik the corridor extends west along the Gulf of Alaska coast to Perryville and Ivanof Bay. It also extends from Chignik to Chignik Lake and Chignik Lagoon, then crosses the Alaska Peninsula to Port Heiden. From Port Heiden the corridor extends north, connecting Pilot Point, Ugashik, Egegik and South Naknek, and tying into the Cook Inlet to Bristol Bay Corridor at Naknek.

Dillingham/Bristol Bay Area Corridor

The Dillingham/Bristol Bay Area Corridor is an overland corridor connecting the port city of Dillingham to the Cook Inlet to Bristol Bay Corridor. It includes a crossing of the Wood River at Aleknagik and a major crossing of the Nushagak River. There are several possible tie-in locations to the Bristol Bay to Cook Inlet corridor. The plan models a corridor from Aleknagik to Igiugig via Levelock.

Selected Community Linkages

Given the above listed corridors, the plan's next task is to select the portions of each corridor that provide the greatest near-term benefit. Several projects are recommended.

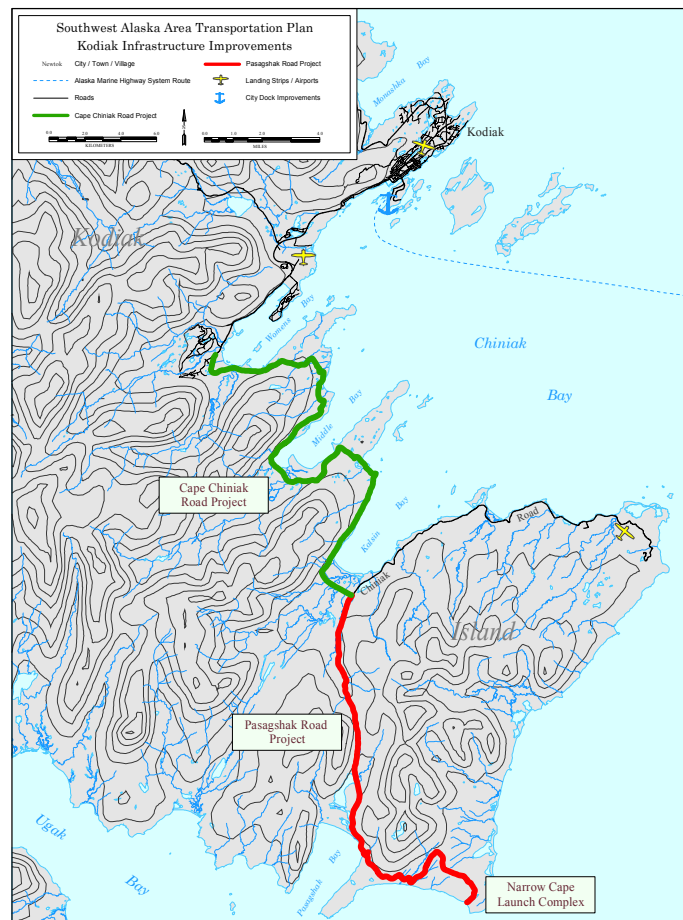
Williamsport to Pile Bay Roadway Improvements

The existing road between Williamsport and Pile Bay is already in use for the transport of fishing vessels from winter refitting in Homer to the summer fishing grounds in Bristol Bay and back. Much of the time it is the only route that provides access for heavy equipment to reach the Iliamna area. The road itself has not been adequately maintained over the years, is exceedingly narrow in places, and several bridges need upgrading. But the reason the plan endorses this project is because of its value. Coupled with navigation improvements at Williamsport and a public-use dock and ramp at Pile Bay, this route becomes the essential conduit for the movement of freight and commodities via barge from the railbelt to the communities around Iliamna. The potential volume of fishing vessels being transported to and from Bristol Bay increases as well. Improving this facility immediately lowers costs to users and residents and opens the Cook Inlet to Bristol Bay corridor to new transportation possibilities in the private and public sector.

Kodiak Road to Launch Complex

The existing road from Kodiak to the launch complex and Coast Guard LORAN station at Narrow Cape provides a key strategic link from airport and port facilities in Kodiak in support of State and national strategic (defense and economic) interests. The importance of this link is expected to grow in the coming years. The project (Figure S2) involves improvement of Chiniak Road from Womens Bay to the intersection of Pasagshak Road, and improvement of Pasagshak Road from Chiniak Road to Narrow Cape.

Figure S2: Kodiak Road Improvements



Chigniks Intertie

A road connecting the three nearby communities of Chignik, Chignik Lake and Chignik Lagoon is expected to improve overall transportation reliability and safety, as well as encourage economic efficiency and consolidation of community services. This project complements the construction of a municipal dock at Chignik, and makes delivery of heating fuel to Chignik Lake and Chignik Lagoon less costly and more certain. Additionally, this project makes possible the consolidation/expansion of aviation services at one or more airports to make air travel more dependable and safe for the residents of all three communities.

King Cove - Cold Bay Connection

This plan recognizes the need for a viable and practical surface (overland and/or marine) transportation link between the communities of King Cove and Cold Bay, and endorses the findings of the King Cove-Cold Bay Facilities Concept Report and Assessment of Transportation Need (DOT&PF, 1999). It supports further efforts by both communities to refine and implement a near-term, workable transportation solution.

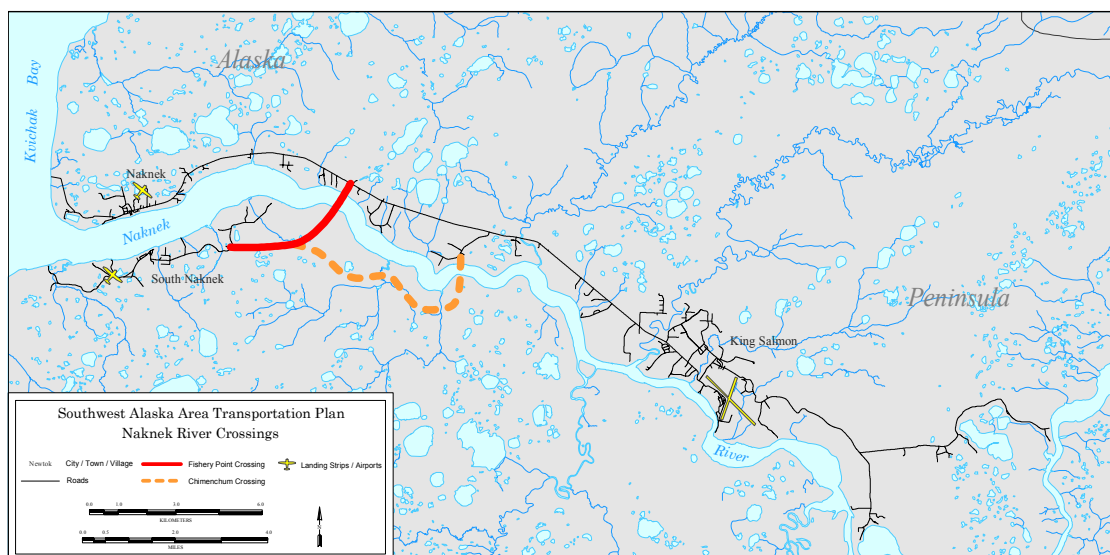
Naknek/South Naknek/King Salmon road link and area aviation needs study

A surface link spanning the Naknek River and connecting the three communities of Bristol Bay Borough (see Figure S3) is desirable for many reasons. However, further study is warranted to better identify the range of services affected and the overall savings such a project would mean for the State and the Borough. Additionally, completion of this project would be expected to affect aviation use patterns and the priority of aviation operations and improvements at individual airport facilities.

Therefore, the plan proposes a multi-modal needs study to define appropriate level of aviation investment, and to examine the distribution of costs and benefits among various interests. The study's purpose is to assist in the formulation of a project financing plan and determination of responsibility for ownership and/or operation and maintenance of facilities.

The needs study is not considered a necessary prerequisite for commencing design, engineering, and environmental work on the Naknek bridge project.

Figure S3: Naknek Area road link



Triggering consideration of other links

Development of surface transportation links in the corridors other than those listed in the previous section is considered unlikely during the upcoming 20-year timeframe because of the perceived high investment cost and the relatively low benefit yield (due to small size of populations affected). However, circumstances could occur that might prompt a fresh look at one or more of these links:

- Rapid population growth in one or both communities connected by the potential link, or a combined population rise to double the figure forecasted for year 2020 (see Table 2).
- Discovery of high value resource that could potentially be accessed economically through development of the link.
- Major business/economic development in one or both communities connected by the potential link.
- Availability of new transportation technology that dramatically reduces capital and/or operating costs for a particular link
- Catastrophic natural disaster that alters normal transportation development pattern.

Should any of these eventualities occur during the life of the plan, the State of Alaska may consider a redetermination of the need, benefits and costs of the link(s) in question.

Intermodal Development

The plan stresses the importance of recognizing the interrelationship of transportation infrastructure and the need to develop facilities in a way that enables them to complement each other and multiply their benefit to users. The plan examines the corridors and focuses on key locations for region entry and exit. If the transportation facilities in these locations are more fully developed, benefits generate more readily, and these benefits are passed indirectly to other communities. Eventually, benefits generated by transportation development at these locations may be sufficient to justify extending infrastructure to the next location along the corridor.

Key locations where interdependency of modes already has a strong influence on the regional economy and infrastructure include Unalaska, Kodiak, Dillingham, Naknek/King Salmon, Iliamna and Cold Bay. The plan encourages projects that recognize the intermodal interdependency at these locations and help to improve overall system efficiency.

Key underdeveloped locations for region entry cited in the plan include **Williamsport** for the Cook Inlet to Bristol Bay Corridor, and **Chignik** for the Alaska Peninsula Corridor. The plan proposes **project sets** that capitalize on improving the accessibility, safety, reliability, and the overall utility of these locations for the movement of goods and services.

Project Set: Williamsport - Pile Bay

The Williamsport - Pile Bay project set (Figure S4) focuses on what is currently the "weak link" in the Cook Inlet to Bristol Bay Corridor, and recognizes the potential for greater transportation use of the lake and river systems from Iliamna Lake to Bristol Bay if this link were improved upon. Emphasis is placed on:

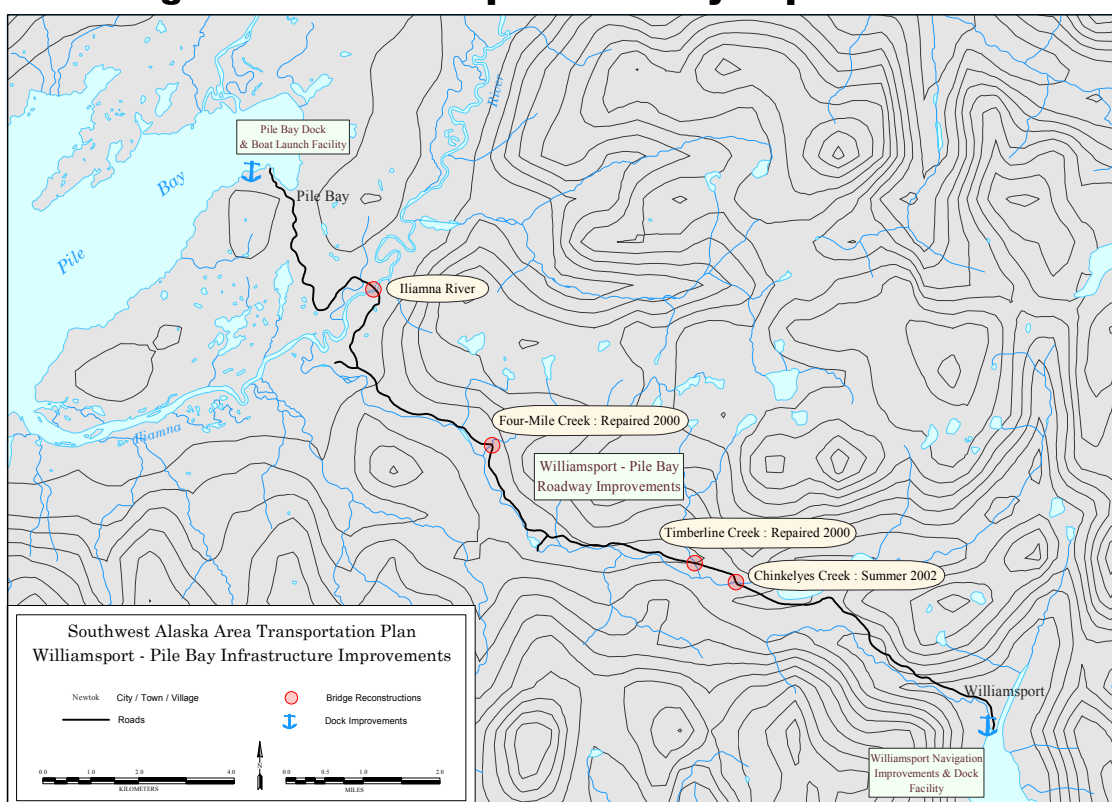
- Marine access to Williamsport and efficient intermodal transfer

- Safe, reliable overland transport
- Efficient intermodal transfer at Pile Bay

Thus the project set involves the **simultaneous development and implementation** of several projects:

- Williamsport Navigation Improvements and transfer facility
- Williamsport - Pile Bay Road Improvements (discussed earlier), and
- Pile Bay Public-use dock and transfer facility

Figure S4: Williamsport-Pile Bay improvements



Project Set: Chigniks

The Chigniks project set (Figure S5) focuses on the potential for economic development through improved transportation efficiency, accessibility, and reliability. It recognizes:

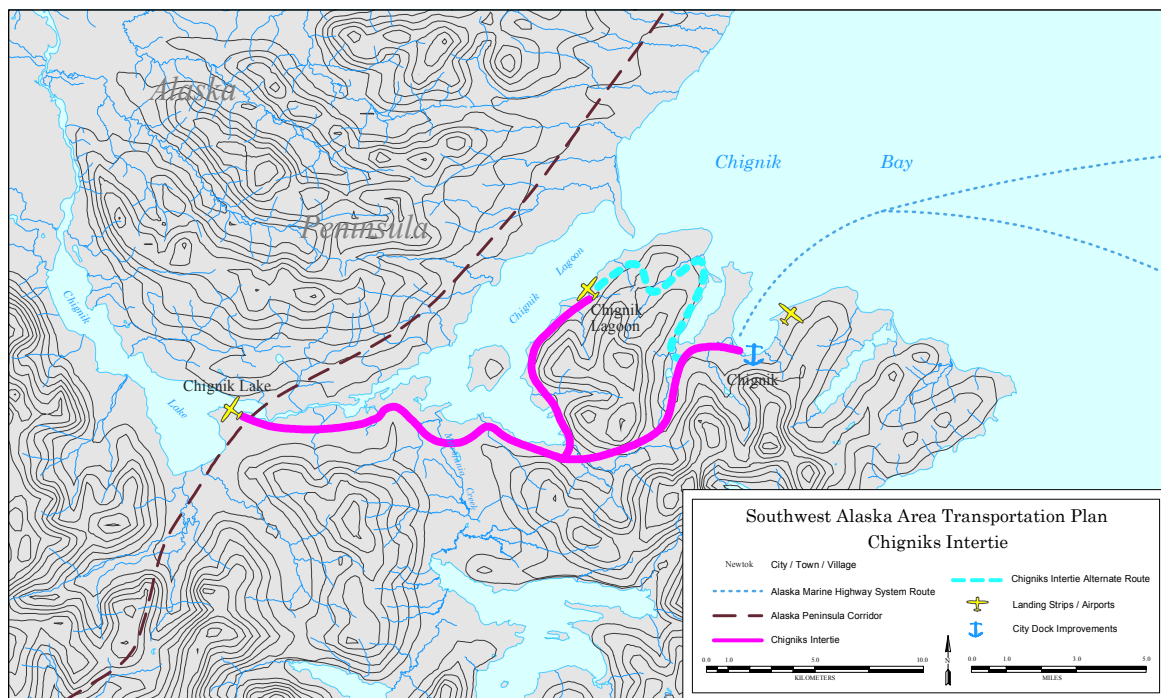
- Inadequate access and structural integrity of Chignik commercial dock
- Close proximity of three communities
- Low reliability of scheduled air service and limited ability to improve existing facilities

The Chignik area depends on both marine and air transportation. Currently these services operate independent of one another. The project set helps to promote their interdependence and creates new efficiencies and opportunities for economic growth. The project set includes:

- Chignik municipal dock and fuel tank farm
- Chigniks road intertie (discussed earlier)
- Chigniks area airport master plan

The road intertie project has independent utility, but is made more effective economically and regionally by the municipal dock. The area airport master plan should accompany the road project, as a number of aviation safety improvements are needed now at the three community airports. The area concept starts with the assumption that the intertie road is in place, therefore compelling an interdependent examination of aviation needs for all three communities.

Figure S5: Chignik Area improvements



Improved Marine Highway Service

The residents of Southwest Alaska have long expressed the desire for additional AMHS service. Whatever the practicalities, however, the option was not available due to the shared use of the ocean-going ferry *Tustumena* between Prince William Sound and Southwest Alaska. With the implementation of the *Prince William Sound Transportation Plan* (DOT&PF, 2001), *Tustumena* will no longer be needed for service in Prince William Sound. The plan proposes

that the service hours thus freed be devoted to Southwest Alaska service. This should include additional trips between Kodiak and the mainland and additional trips between Kodiak and Unalaska (and points between).

As a result, several shore facilities in the region will see significantly increased use by AMHS and are cited in the plan for upgrades or new facilities to support increased operational demands. These include dock improvements at:

- Kodiak - Relocate Municipal Dock
- Chignik - Construct Municipal Dock
- Unalaska - Improve Unalaska Marine Center Dock Position 1

These improvements are discussed further in the subsequent section on Ports and Harbors.

Aviation System Improvements

Aviation plays a vital role in the transportation of Southwest Alaska. For most of the communities in the region, air transportation currently represents the only practical means of movement between communities, and for all of them it represents the only practical entry into and exit from the region. For this reason alone, aviation system safety in the region is of primary importance.

The region has 66 airports, including 13 seaplane facilities. DOT&PF owns, operates and maintains 42 of these. Several of the region's airports serve as hubs for the distribution of mail and air cargo to surrounding communities.

The plan examines the strengths and weaknesses of this system, as well as the present and potential consequences of current aviation policies and planning. The plan's recommendations are geared to strengthening aviation system safety, reliability, and efficiency, and can be broadly categorized into three themes:

- **Minimum runway length.** The plan recognizes the Alaska Aviation Coordination Council recommendations for a minimum runway length design of 3300 feet and all-weather approach and landing capability for public airport rural access within the state. At the same time, the plan recognizes the regional significance of several hub facilities, and the need for ongoing improvements to these facilities that may have greater urgency and priority over lengthening a below minimum standard runway at some other location.
- **Design aircraft.** The plan forecasts future aviation demand in the region, and examines trends in the aviation industry to assist in the selection of design aircraft for airport master planning purposes.
- **Intermodal emphasis.** The plan highlights interrelationships between aviation and marine freight, and stresses coordinated planning in order to improve efficiencies and lower costs.

Additionally, several broad policy issues were discussed and highlighted during the planning process. While the plan's purpose is not to rewrite statewide aviation policy, nevertheless the discussions served to enlighten understanding of the region's aviation needs and challenges,

and are carried forward for future aviation system planning at the statewide level. These issues include:

- USPS bypass mail carrier selection
- Rising insurance costs and effect on passenger air service
- Minimum design standards for medevac
- Consideration of "non-essential" needs (i.e. air carrier concerns, community desires) in airport improvement design and statewide project scoring. In Southwest Alaska and elsewhere in the state there is a recurring conflict between community desires for larger airport facilities and the limitations of state funds for maintaining and operating them. The plan provides a methodology for resolving these issues at the system and individual airport level. This approach, on page 12, improves planning flexibility, permitting community input to be factored into airport improvement projects and the additional costs appropriately assessed by local-state agreement.

Port and harbor improvements

The thrust of this element is addressed in the earlier elements. It is mentioned separately because of the unique problem of securing funding for port and harbor projects. The facilities singled out for attention include:

- Williamsport Navigation improvements and dock facility
- Pile Bay public dock and boat launch facility
- Chignik public dock facility and fuel tank farm
- Unalaska city dock improvements
- Kodiak city dock improvements

Each of these is discussed briefly in order to emphasize their importance to achieving the plan's objectives.

Williamsport Navigation improvements and dock facility

The basic scope of this project is addressed in the report *Navigation Channel Feasibility Report and Environmental Assessment: Williamsport* (US Army Corps of Engineers Alaska District, December 1995). The report describes a 2500-meter dredged channel with a 55 -meter wide turning basin, a 30-meter face sheetpile dock and 12-meter wide boat launch ramp. The facility would be accessible at extreme high tides, weekly by landing craft and twice monthly by tug and barge. This access frequency is well suited to meeting the freight needs of the Iliamna Lake communities for the foreseeable future.

Pile Bay public dock and boat launch facility

This project is a necessary part of the Williamsport-Pile Bay road project. The current road terminates on private property owned by the Iliamna Transportation Company. A necessary precondition for road improvements is reasserting public right of way throughout the entire road

corridor. At Pile Bay this most likely will involve realigning the road and identifying a suitable site for a dock and boat launch ramp facility. The facility characteristics could be very similar to the Williamsport dock and launch ramp, except that in Pile Bay no need for a dredged channel or turning basin is anticipated.

Chignik public dock complex

The Chignik public dock concept is described in the City of Chignik report *Economic Feasibility Study of Chignik City Dock and Related Infrastructure* (Northern Economics, Inc./Peratrovich, Nottingham, and Drage, Inc., Nov 2001). The report calls for a publicly-owned dock complex including vehicle staging area, boat stowage, marine repair facilities, refueling facilities, and a regional bulk fuel tank farm. The tank farm was completed in 2001 with funding provided primarily from the Denali Commission.

The project meets a long-term need for unrestricted marine access to dock facilities at Chignik. It could also meet the need for a safe and reliable mooring facility for the Alaska Marine Highway system, whose vessels now must moor to aging processor facilities with a questionable remaining service life. The Department of Community and Economic Development has sponsored the project for a number of years, but heretofore the significant amount of capital funds needed to design and build the project has not been made available.

The Southwest Alaska Transportation Plan moves this project out of the realm of a community-level improvement and into statewide significance by demonstrating the strategic importance of the port through a systems analysis. The plan expresses the importance of Chignik as a marine hub for the lower Alaska Peninsula, making possible further infrastructure improvements to the neighboring communities, lowering costs of freight and fuel distribution, and creating a climate for economic growth and improved quality of life.

Unalaska city dock improvements

This project replaces Position 1, an aging pile-supported wooden portion of the Unalaska Marine Center (UMC) that is used for general cargo and AMHS ferries. The dock replacement would entail a sheet pile cell dock with improved backreach queuing and parking areas. This project will improve cargo handling and storage and staging at the UMC. This improvement, coupled with ongoing road improvements between dock and airport, enhances Unalaska's intermodal efficiency and significantly improves safety for AMHS ferry landings.

Kodiak municipal and ferry dock

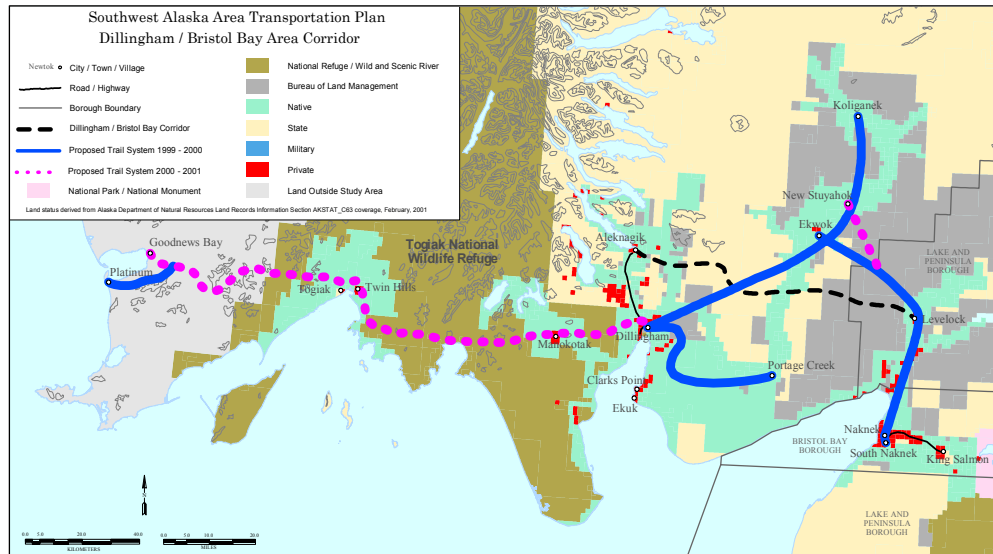
This project concept recognizes the significant need for a replacement dock facility for AMHS ferry landings, particularly in view of increased ferry service recognized in this plan as an outgrowth of PWS Transportation Plan implementation. In addition it also recognizes the need for a more capable dock facility in Kodiak to replace the aging and difficult-to-access municipal dock.

Marked Winter Trail System

The need for a permanent, marked winter trail system connecting villages for wintertime access by snowmobile and/or dogsled is validated. This trail system interconnects with the Yukon-Kuskokwim trail system at Goodnews Bay. It connects all of the communities north of Bristol Bay and has its southern terminus in Naknek. The trail system (Figure S6) is an essential mode

of transportation between communities during the winter months, and requires ongoing maintenance and upkeep.

Figure S6: Southwest Alaska Winter Trail System



Validation of previous approved and ongoing "Baseline" projects

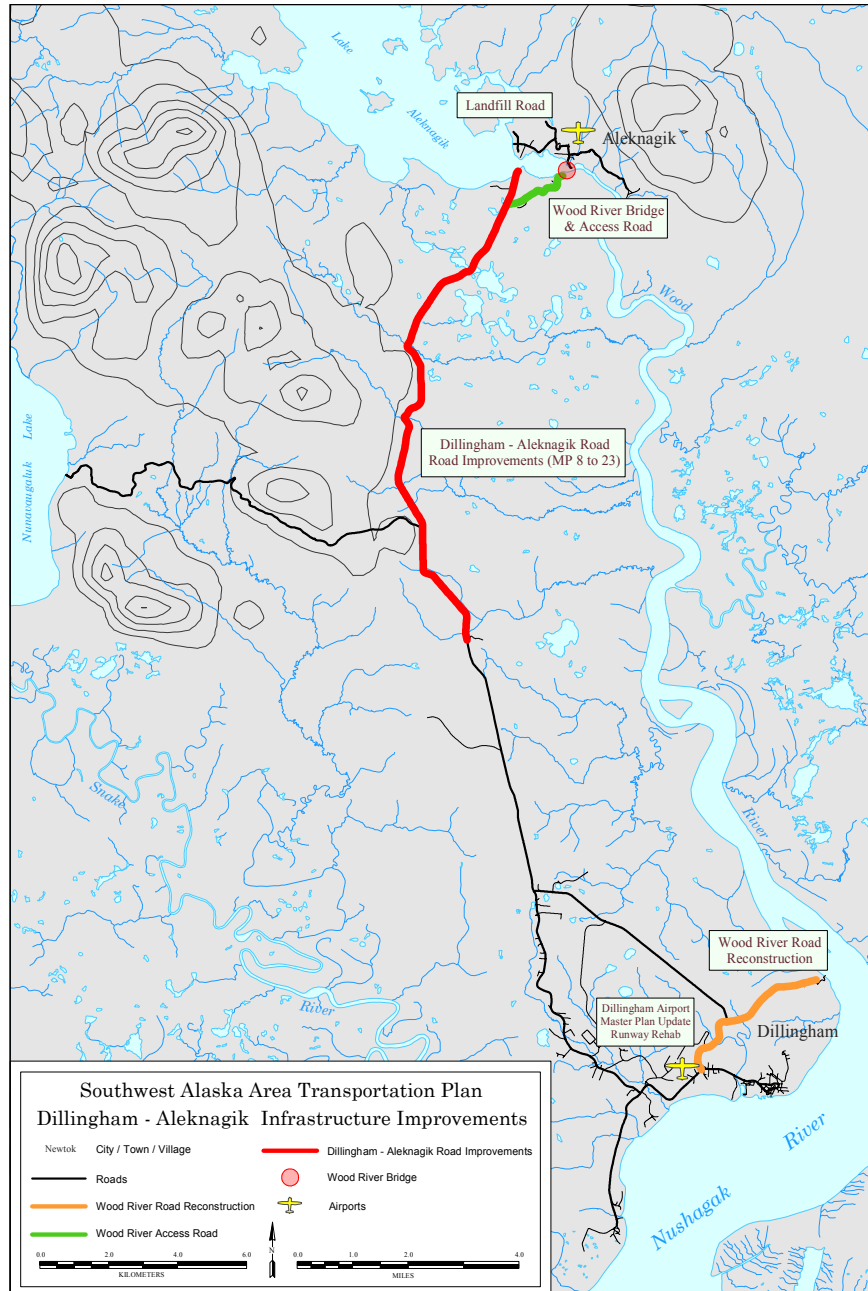
Several ongoing road and aviation projects are already in various stages of development. The Southwest Alaska Transportation Plan validates the established need for these projects and further calls attention to their significant role in enhancing the region's transportation. They include:

- Dillingham - Aleknagik Road and Wood River Bridge
- Iliamna - Nondalton Road

Dillingham - Aleknagik Road and Wood River Bridge

Completion of the Dillingham - Aleknagik Road (Figure S7) will provide Aleknagik residents better access to the regional airport at Dillingham, and lessen dependency upon the Aleknagik airport for critical transportation needs, and improves safety by providing a safe alternative to flying in marginal conditions. Completing the road connection enhances Aleknagik's role as a jumping-off point for recreation opportunities. Additionally, consolidation of some services and improved commerce between the communities is made possible.

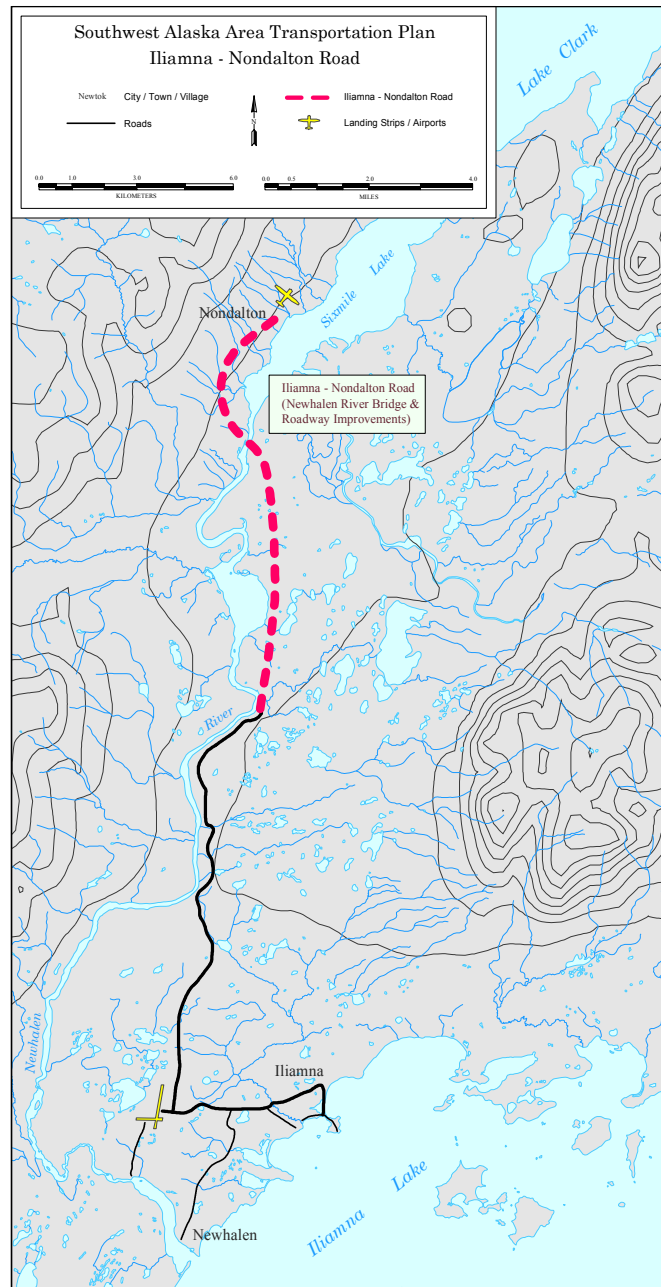
Figure S7: Dillingham and Aleknagik Area improvements



Iliamna - Nondalton Road

Completion of this project (Figure S8), which includes the Newhalen River Bridge and upgrade improvements to the existing roadway between the communities of Iliamna and Nondalton, improves Nondalton residents' access to Iliamna's regional airport and lowers costs to Nondalton residents for goods and services. It lessens dependence upon Nondalton's small community airport, provides a safer transportation conveyance in marginal conditions, and improves the economic climate in both communities. The improved economic and business climate created by the connecting these communities highlights the need for improving the freight corridor between Williamsport and Pile Bay.

Figure S8: Iliamna-Nondalton Road



Summary

The Southwest Alaska Transportation Plan establishes a framework for systematic transportation implementation in the region over the course of many years. By pointing out desirable corridors and highlighting interrelationships and dependencies, the plan provides not only a prioritized sequencing of recommendations, but also the necessary justification for carrying those recommendations through to completion.

The Context for the Southwest Alaska Transportation Plan

Vast, beautiful, and rugged, the 400-mile wide Southwest Alaska region extends along 1,100 miles. Its 30,000 residents inhabit 54 far-flung communities from Kodiak to Saint Paul. However, economic development is constrained by the region's very limited transportation infrastructure. Because the region lacks a regional roadway network, residents and visitors are more dependent on air and marine travel than people anywhere else in the developed world.

The lack of basic transportation infrastructure has several implications (in addition to the barrier posed to economic diversification). Passenger and freight movements are very expensive, contributing to a cost of living significantly higher than that experienced elsewhere in the state, much less the rest of the country. The cost and difficulty of travel make it difficult for the region's leaders to join forces to coordinate their individual efforts and to advocate for private investment and state and federal resources.

The Southwest Alaska Transportation Plan considers the region's transportation needs in all modes: highways, air, and marine service, through the year 2020. In addition, the plan contains a set of improvements that are key to the region's development, but whose scope and cost make it unrealistic to consider them within the 20-year timeframe of this plan.

The Southwest Alaska Transportation Plan has several overarching purposes:

- To ensure responsible, equitable, and effective use of transportation funding,
- To provide opportunities for meaningful public involvement,
- To develop long-range, regionally based intermodal transportation infrastructure to address movement between communities in the region and from the region to points beyond.

Study Area

The study area for the Southwest Alaska Transportation Plan includes the Alaska Peninsula, Kodiak and its neighboring islands, the Aleutian Islands, the Bristol Bay area, and the Pribilof Islands, as shown in Figure 1. For purposes of data tabulation, the region is divided into six census areas: Aleutians East Borough, Aleutians West Census Area, Bristol Bay Borough, Dillingham Census Area, Kodiak Island Borough, and Lake and Peninsula Borough. The communities within these census areas are listed in Table 1.

Figure 1: Southwest Alaska Transportation Plan Study Area

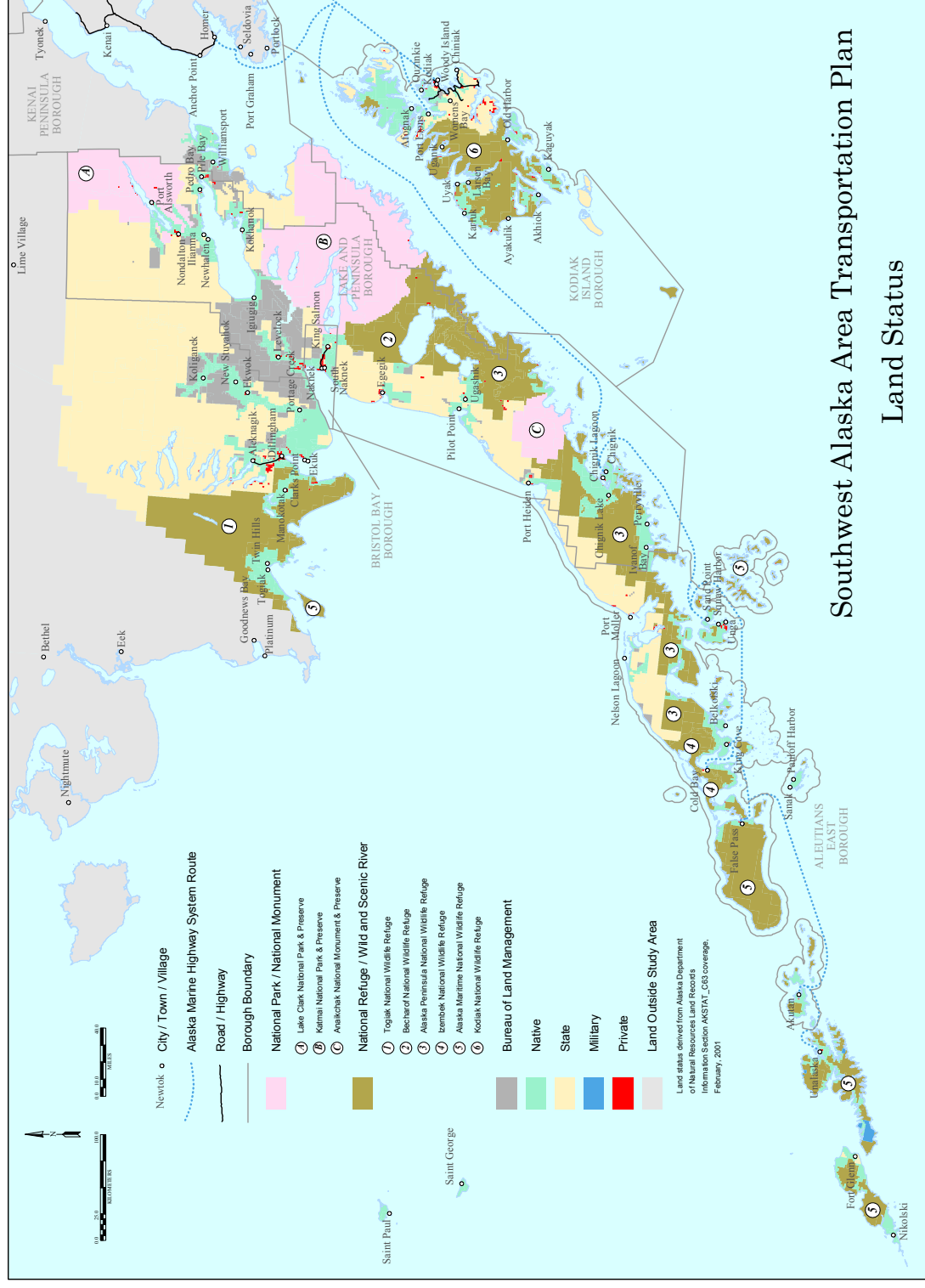


Table 1
Communities in Southwest Alaska
by Census Area

Aleutians East Borough	
• Akutan	• King Cove
• Cold Bay	• Nelson Lagoon
• False Pass	• Sand Point
Aleutians West Census Area	
• Adak	• Saint George
• Atka	• Saint Paul
• Nikolski	• Unalaska
Bristol Bay Borough	
• King Salmon	• South Naknek
• Naknek	
Dillingham Census Area	
• Aleknagik	• Manokotak
• Clark's Point	• New Stuyahok
• Dillingham	• Portage Creek
• Ekwok	• Togiak
• Koliganek	• Twin Hills
Kodiak Island Borough	
• Akhiok	• Old Harbor
• Chiniak	• Ouzinkie
• Karluk	• Port Lions
• Kodiak	• Womens Bay
• Larsen Bay	
Lake and Peninsula Borough	
• Chignik	• Newhalen
• Chignik Lagoon	• Nondalton
• Chignik Lake	• Pedro Bay
• Egegik	• Perryville
• Igiugig	• Pilot Point
• Iliamna	• Port Alsworth
• Ivanof Bay	• Port Heiden
• Kokhanok	• Ugashik
• Levelock	

The majority of Southwest Alaska's land portion is contained in the Alaska Peninsula and the mainland areas adjacent to Bristol Bay. Kodiak Island, the Aleutian Islands, and the Pribilof Islands comprise the remainder of the land portions. The Alaska Peninsula extends 500 miles southwest from the western shore of Cook Inlet to its tip near False Pass. From there the Aleutian Islands, a 200-piece chain, curve another 1,000 miles west, separating the North Pacific from the Bering Sea. The mainland adjacent to Bristol Bay and the Alaska Peninsula constitute the bulk of the study area's land portion. Kodiak Island and the Aleutian Islands along with the smaller and outlying island groups comprise the balance of the area's land portion.

Weather patterns here are influenced by conditions caused by the confluence of the arctic waters of the Bering Sea and the relatively warm waters of the North Pacific. This confluence contributes to heavy precipitation, frequent fog, high winds, and moderate temperatures. Strong winds and frequent storms contribute to frequent rough sea conditions, making marine transport difficult and sometimes hazardous. At any given location surface winds can be quite variable due to effect of the mountainous terrain.



In the autumn, on-shore winds, combined with high tides, can be quite exciting. This is a view of the winterman's house at Pederson Point, Naknek, AK. (Pederson Point, 1994)
Photograph by Fred R. Anderson

Population

In the 2000 Census the Southwest Alaska study area population is 30,078. The largest communities in Southwest Alaska are Kodiak, Unalaska and Dillingham. The Kodiak Island Borough has by far the largest population of any of the six census areas (nearly half of the Southwest total). By 2020, the study area population overall is expected to reach nearly 37,000.¹ Current and forecast population figures by community and census area are provided in Table 2.

¹ Demographic forecasts were prepared as part of this study effort by Dr. Scott Goldsmith at the University of Alaska's Institute for Social and Economic Research. These have subsequently been adjusted based on results from the 2000 Census.

Table 2
2000 Population and 2020 Base Forecasts

Census Area	Community	2000 Population	2020 Base Forecast
Aleutians East Borough	Akutan	713	570
	Cold Bay	88	60
	False Pass	64	80
	King Cove	792	880
	Nelson Lagoon	83	110
	Sand Point	952	1,020
	Other	5	10
	Total	2,697	2,730
Aleutians West Census Area	Adak	316	400
	Atka	92	110
	Nikolski	39	40
	Saint George	152	180
	Saint Paul	532	660
	Unalaska	4,283	5,630
	Other	51	70
	Total	5,465	7,090
Bristol Bay Borough	King Salmon	442	530
	Naknek	678	860
	South Naknek	137	170
	Other	1	--
	Total	1,258	1,560
Dillingham Census Area	Aleknagik	221	280
	Clark's Point	75	100
	Dillingham	2,466	3,410
	Ekwok	130	200
	Koliganek	182	260
	Manokotak	399	540
	New Stuyahok	471	670
	Portage Creek	36	40
	Togiak	809	1,180
	Twin Hills	69	90
	Other	64	90
	Total	4,922	6,860

Census Area	Community	2000 Population	2020 Base Forecast
Kodiak Island Borough	Akhiok	80	100
	Chiniak	50	50
	Karluk	27	20
	Kodiak and vicinity ¹	12,165	14,110
	Larsen Bay	115	110
	Old Harbor	237	280
	Ouzinkie	225	290
	Port Lions	256	280
	Womens Bay	690	800
	Other	68	80
	Total	13,913	16,120
Lake and Peninsula Borough	Chignik	79	80
	Chignik Lagoon	103	150
	Chignik Lake	145	200
	Egegik	116	170
	Igiugig	53	90
	Iliamna	102	140
	Ivanof Bay	22	20
	Kokhanok	174	250
	Levelock	122	170
	Newhalen	160	230
	Nondalton	221	330
	Pedro Bay	50	60
	Perryville	107	140
	Pilot Point	100	160
	Port Alsworth	104	150
	Port Heiden	119	170
	Ugashik	11	10
	Other	35	50
	Total	1,823	2,570
Southwest Alaska Total		30,078	36,930

¹ Includes approximately 3,000 residents of Coast Guard base.

Economy

Economic activity throughout the Southwest region is dominated by the commercial fishing to a much greater extent than in other parts of the state. About 41 percent of all study area employment in 2000 consisted of jobs in fishing and fish processing. The figure is much higher in selected areas, such as the Aleutians East Borough, where 65 percent of all working individuals were employed in seafood processing.² Moreover, these figures only partially reflect the large number of non-permanent workers seasonally employed during peak commercial

² Source: Alaska Department of Labor, 2000 Employment & Earnings Summary File for Alaska and all boroughs and census areas

fishing periods.³ Fishing and fish processing are concentrated in Unalaska, Bristol Bay (including Dillingham and Naknek) and Kodiak. Additional fishing and seafood processing activity takes place throughout the region, including the smaller communities of the Aleutians East Borough and the Lake and Peninsula Borough. The future of the commercial fishing industry will depend on the availability of resources for harvest and the commercial viability of the fisheries, as well as the region's ability to better market fish products and develop value-added and secondary processing capacity. A glut of salmon on the international market and the emergence of significant foreign farm fishing activities have threatened the future health of the Alaskan salmon industry.

The recent adding of the new Kodiak Launch Complex (KLC) at Kodiak Island's Narrow Cape offers opportunities for regional development in the aerospace industry. KLC is the only commercial launch range in the United States not co-located with a federal facility.

Tourism, service industries and government employment round out the employment scene in Southwest Alaska. Of government workers, a significant number are employed by borough and city administrations.

Potential for mining activity exists in the region, particularly with the Pebble copper deposit northwest of Iliamna. Mining development would require a sufficiently high mineral price on the world market and enabling technology to make extraction and transport profitable.

As noted in the *Fishing Disaster Impact Report and Economic Recovery Plan for the Lake and Peninsula Borough*⁴, the region's remoteness is both an advantage and a barrier for economic development. It is an advantage insofar as:

- It contributes a great deal to the market economy of the region by limiting development in areas crucial to spawning salmon, and preserving wilderness areas and parklands that create an attraction for tourism, and
- It makes it possible for Native Alaskan residents to continue their social and cultural traditions. Remoteness serves to protect the abundance of natural resources upon which a subsistence lifestyle depends, and limits encroachment by outside cultures.

However, the area's remoteness and lack of a more developed transportation infrastructure pose significant economic disadvantages:

- The remoteness of the region's communities inhibits economies of scale that could significantly reduce per capita costs of goods and services. Examples of economies of scale that are more achievable in less remote areas are discounts in price resulting from high-volume purchase of goods and nearly universal use of large electrical generation facilities.
- The limited transportation infrastructure inhibits movement between communities within the region, multiplying the costs of each individual movement. For example, movement between two relatively close communities will usually require a plane flight, which will possibly require routing through Anchorage or a subregional hub. In the case of Bristol Bay Borough, the absence of a river crossing means that separate emergency response services are maintained on both sides of the river, and that schoolchildren residing in South Naknek fly to school in Naknek each day. These costs are a significant burden upon local government and a hindrance to local business and economic development.

³ As in the rest of Alaska, most of the economic activity in Southwest Alaska occurs during the summer. For instance, the annual sockeye salmon runs near Bristol Bay attract thousands of fishes and workers to the region during the summer months.

⁴ *Fishing Disaster Impact Report and Economic Recovery Plan for the Lake and Peninsula Borough*, by Northern Economics, Inc. in association with KEA Environmental, Inc., and HDR Alaska, Inc. June 1999.

The Existing Transportation System

Geography has limited inter-and intra-regional transportation in Southwest Alaska to primarily two modes: air and water. Because of the great distances between communities within and outside of the region, time-sensitive movement of lighter goods is typically done by air, while other travel – particularly movement of bulky or heavy cargo – is typically conducted by water.

Marine Transportation

Alaska Marine Highway System

The Alaska Marine Highway System (AMHS) provides a critical modal alternative to air travel for residents of Southwest Alaska – for both freight and passenger movement. State-sponsored marine transportation services were originally established in Southwest Alaska, Southeast Alaska and Prince William Sound (PWS) to provide passenger, freight, and vehicle transport for Alaskan communities where highway facilities on land were not feasible.⁵ The importance of the AMHS to basic transport is recognized in that many AMHS projects are eligible for federal surface transportation funds that in most other states can only be used on highway facilities. In 2002 AMHS received designation as a National Scenic Byway (SB). Congress created the SB program in 1991 to preserve and protect the nation's most scenic routes.

All of the coastal communities in Southwest Alaska desire improved marine transportation service, and have historically supported ocean-going ferry service, including the building of *Kennicott* and its potential service in the region. The introduction of passenger ferry service in Bristol Bay or the Pribilofs was investigated for the plan but tabled because it was clearly cost-prohibitive (see Alternatives Development, p.49). The communities on the southern side of the peninsula receive on average seven trips per year by the *Tustumena*. The *Tustumena* and the *Kennicott* are currently the only AMHS owned and operated vessels with the requisite US Coast Guard certifications (for open-ocean operations) necessary to serve these communities.

On the other hand, the *Tustumena* currently spends 25.6% of its annual vessel miles and approximately 37% of its annual operating time in service to PWS. It is the only vessel serving PWS in the winter months. The *Prince William Sound Transportation Plan* identified that future PWS transportation need can be better met year-round by new high-speed vessels. Assuming that these new vessel types are deployed in PWS, the *Tustumena* should become available for increased service in Southwest Alaska. Specification of possible schedules and cost issues related to this redeployment are discussed later in this report.

Shore facilities serving AMHS operations in this part of the state are, generally speaking, in a diminishing state of readiness. Some are municipally owned, and some are privately owned, but none receive the level of attention that are afforded to facilities elsewhere in the system that AMHS owns (and operates) outright. The plan's recommendations for facility improvements are warranted for the sustaining of current operational levels, but are given additional impetus due to the prospect of increased AMHS activity in Southwest Alaska by the *Tustumena*.

⁵ "The mission of the AMHS is to serve Alaska communities by providing passenger, freight (van) and vehicle transportation between communities without land highway connections. This service helps meet the social, educational, health, and economic needs of Alaskans...The system connects communities with each other, with regional centers, and with the continental road system. It is an integral part of Alaska's highway system, reaching many communities that would otherwise be effectively cut off from the rest of the state. The AMHS is designed to provide basic transportation to these communities..." Alaska Marine Highway System, "2000 Annual Traffic Volume Report," October 2001, page 1.

Port and Harbor Facilities

Not only does marine transportation play a critical role in person movement in Southwest Alaska; it is also central to the region's economy, character, and accessibility. Utilitarian in nature, marine facilities have evolved to support the operations, marketing, and distribution of the region's fishery resource. They also serve the Alaska Marine Highway System, which currently serves ten ports of call in the Southwest region, each requiring docking, loading, and offloading capacity.

A port or harbor is the intermodal transportation facility connecting marine activity with community activity that:

- Provides access to nearby and distant marine resources; world-class biological, mineral, and scenic values are made accessible through investments in our waterways.
- Provides mobility for a dynamic fishing fleet; resource management practices require a very mobile fleet to maximize the productivity and efficiency of the biological harvest.
- Provides a safe haven for maritime operators; safe shelter for vessels and operators is essential to public safety.
- Reduces operating costs for maritime operations; lower operating costs mean more productivity, more access, and lower transportation costs for freight and product movements.
- Functions as the portal for the public's beneficial use of the waterways. Public access to the waterways for commercial, recreational and subsistence activity is essential to preserve our social and cultural heritage.

Due to the importance of commercial fishing in Southwest Alaska, the region's predominant marine facility is geared to accommodate the offloading, servicing, and supplying of fishing vessels. In many communities, these docks serve cargo vessels as well, receiving barge deliveries of fuel, vehicles, food, and other commodities for consumption within the area. Cargo vessel service to the area is provided via regularly scheduled barge shipments from Anchorage and Puget Sound.

In Southwest Alaska, small boat harbors may fulfill as basic a transportation and economic need as do highways or airports in other areas. The needs of individual vessel owners, who are in large part responsible for the actual harvesting of the region's economic mainstay, need a safe place in which to moor, repair, outfit and fuel their vessels.



The Small Boat Harbor at Sand Point



Southwest Alaska Ferry Ports

The lack of a regular federal funding program for capital improvement of ports and harbors (such as exists for roads and airports) hampers the systematic improvement and maintaining of the region's ports and harbors, and places a heavy burden on the state and local governments. As a result, many facilities are capacity-limited and overused, contributing to a diminished service life. Poor salmon returns over the past several seasons further eroded the level of tax revenues available for many of the Southwest Alaska communities, and limited their ability to fund upkeep and maintenance of these critical facilities. Some communities like Perryville are awaiting the construction of a boat harbor.

Because the main economic benefits flow into the region through the ports, port facilities are a logical starting point for the development of regional transportation infrastructure that aims to distribute goods and services to communities more efficiently. Thus the Southwest Alaska Transportation Plan highlights several specific ports as key intermodal transfer points, notably Kodiak, Williamsport, Pile Bay, Chignik, Dillingham, Naknek, King Cove, and Unalaska. In particular the plan concentrates on new public dock development at Chignik, Williamsport and Pile Bay to support regional transportation and economic development goals.

Air Transportation

Aviation, like marine transport, plays a vital role in Southwest Alaska. Aviation is the primary means of accessing all of the study area's 53 communities, every one of which is served by scheduled flights or air taxis. Mainline service connects the region to the rest of the world through key airports at Dillingham, Iliamna, King Salmon, Kodiak, Cold Bay, St Paul, St George and Unalaska. Because the region is characterized by small population centers separated by long distances and rugged terrain, a higher percentage of freight is flown into the Southwest region than any other part of the state. In remote villages, over half of all goods consumed are flown in on small planes.

Southwest Alaska Key Airports						
Airport	FAA Category	DOT&PF AASP Category	Passenger hub	USPS hub	Part 139 Certificated	Non-stop service to ANC
Cold Bay	Commercial Service	Regional	Y	Y	Full	N
Dillingham	Primary	Regional	Y	Y	Full	Y
Iliamna	Primary	Regional	Y	Y	Full	Y
King Salmon	Primary	Regional	Y	Y	Full	Y
Kodiak	Primary	Regional	Y	Y	Full	Y
Port Heiden	General Aviation	Community	Y	Y	Full	N
Sand Point	Commercial Service	Community	Y	N	Full	Y
St George	General Aviation	Community	Y	N	N	Y
St Paul	Commercial Service	Community	Y	N	Full	Y
Unalaska	Primary	Regional	Y	Y	Full	Y

The region depends heavily for delivery of goods on the U.S. Postal Service bypass mail system, which allocates 4th class mail delivery from postal hubs to communities among several approved system carriers. In recent years this has produced some instability, since the costs have grown to operate passenger air service and a number of small carriers have entered the system providing cargo-only service. These carriers do not bear the burden of providing passenger service, but siphon funds away from the carriers that do. This trend has encouraged cost cutting among passenger carriers in order to remain solvent. The result is that a greater share of passenger service costs must be borne by the passengers themselves. Passenger

ticket prices on these flights are already painfully high. The bypass mail system was instituted in part to help sustain passenger air service in rural Alaska, but the current trend works against that objective. Since the destabilizing trend is a market response to the USPS procedure for 4th class mail distribution, the procedure needs revision.

The region has 66 airports, including 13 seaplane facilities. DOT&PF is responsible for 42 of these airports. Only 11 of the region's airports are paved; the rest are surfaced with gravel and dirt. Though many, if not most, Southwest Alaska communities use air travel as their primary mode of transportation, few airports have public terminal facilities. Of Southwest Alaska's 49 public airports, only two, Adak and Unalaska, have consolidated public terminals with full passenger facilities and services.

The Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS) categorizes airports with more than 10,000 annual enplanements as Primary airports. Non-primary airports are divided into Commercial Service airports (from 2,500 to 10,000 enplanements) and General Aviation airports (under 2,500 enplanements).

Five airports in Southwest Alaska are categorized as Primary hub airports, Kodiak, King Salmon, Dillingham, Unalaska, and Iliamna. These airports are similarly classified as Regional airports in DOT&PF's Alaska Aviation System Plan. All five of these airports serve as hub airports where passengers transfer from aircraft serving destinations outside Southwest Alaska to smaller aircraft serving local communities within Southwest Alaska.

These five airports also serve as hub points for the distribution of the large amounts of mail that travels by air to Southwest Alaska. Cold Bay and Port Heiden also serve as USPS hubs. In addition, Sand Point, St. Paul, and St. George receive USPS service directly from Anchorage, as well as non-stop passenger service from Anchorage. Cold Bay, Dillingham, Iliamna, King Salmon, Kodiak, Port Heiden, Sand Point, St. Paul, and Unalaska are also designated as Part 139 Certificated airports, which are served by aircraft which carry over 30 passengers.

The remaining airports serving communities in Southwest Alaska are classified as Community airports by the Alaska Aviation System Plan and as Commercial Service or General Aviation airports in the NPIAS. A focus of FAA's *Alaskan Region 2000 Regional Airports Plan* is on rural airports with runways less than 3,300 feet in length. As noted in the *Fall 2000 Regional Airports Plan*:

"Seventy percent of the accidents, in which runway conditions caused or contributed to the accidents, from 1989 to 1993, were on airports with less than 3000 foot runways (ref NTSB 1995 Report). The State and the FAA, Alaska Region, supported by the National Transportation Safety Board, considered 3000 feet to be the minimum runway design length for airports with scheduled air service in 1995. With the advent of GPS, the FAA developed minimum runway length standards of 3200 feet for runways with approach procedures with vertical guidance. This past year (1999), the Alaskan Aviation Coordination Council, consisting of government and industry representatives, adopted a minimum recommended runway length design of 3300 feet for public airport rural access within the State."

The Alaska Aviation Coordination Council Strategic Plan identified two key elements for a **safe and efficient Alaskan air transportation infrastructure**:

- Publicly owned and used airports should be a minimum of 3300' in length, with runway lights, and have at least a minimal shelter for passengers from inclement weather.

- Airports with scheduled air service have an "all weather" approach and landing capability.

These recommendations for minimum runway lengths of 3,300 feet are carried forward into this Southwest Alaska Transportation Plan.

As airports form the lifeline for most communities in this region, **the ability to transport persons with life-threatening conditions to emergency care facilities** is a high priority. Aviation access from remote locations in Alaska to medical facilities was the subject of the May 2001 FAA study *Aviation Access to Remote Locations in Alaska* (available online at <http://www.alaska.faa.gov/Access/RemoteAccess.pdf>). Among its recommendations are the incorporating of lighting with all runway improvement and runway extension projects, an emphasis on federal aviation investment in remote airports, and expansion of FAA's flight weather camera and Capstone (GPS-based avionics and communication link for commercial aircraft) initiatives. Capstone is currently being evaluated in the Yukon-Kuskokwim region.

In addition to safety, a key issue for the region's future is the **expected level of DOT&PF funding** for facility operations and maintenance. Even with no new facilities, rising operational costs due to labor and regulatory requirements spread DOT&PF's resources a little thinner each year. Expanded infrastructure carries with it higher operating costs, yet DOT&PF's budget for airport operations and maintenance is barely sufficient to adequately take care of all of its facilities and is not expected to increase in proportion to newly added facilities or even normal inflation.

Any proposed capital improvements are approached with the **expectation that a local sponsor will necessarily assume some portion**, if not all, of the costs associated with operating and maintaining the improved facility. This is of particular importance to proposed road connections where consolidated use of air facilities is made possible. Determining the impact of new infrastructure on existing airport use in order to affix responsibility for bearing the costs of facility operation is an important consideration, and has direct applicability to proposed road connections from Naknek/King Salmon to South Naknek and from Chignik to Chignik Lake and Chignik Lagoon.

Another factor impacting regional aviation is the **delivery of heating fuel to villages** near the end of winter. In particularly long winters, the amount of fuel consumed can exceed the bulk storage capacity in a village, necessitating the need for additional fuel delivery in winter. This concern is sometimes advanced as a reason for a longer runway at a particular village, so that larger quantities of fuel can be delivered in fewer trips, at a lower overall cost. The Denali Commission has studied this issue and advanced the less-costly solution of replacing and adding fuel tank storage capacity, so that larger fuel quantities can be delivered by barge during the summer, sufficient to last completely through the winter.

Additional runway length can be considered on a case-by-case basis if justification is provided. This justification may include several factors:

- Existing and projected traffic volumes
- Type of aircraft using the airport
- Type of aircraft using the surrounding airports
- Stage length of the flights
- Economic development needs

- Community financial contributions
- Other relevant circumstances

Land Transportation

Roads

Southwest Alaska has very few roadways that connect communities.

- A 15.5-mile road connects King Salmon and Naknek.
- An extensive road network remains from the World War II military buildup in Kodiak, linking the City of Kodiak to the Coast Guard community at Womens Bay, several outlying neighborhoods, Cape Chiniak, Buskin Beach, and Narrow Cape.
- A 23-mile road connects Dillingham and the south shore of Lake Aleknagik. Construction of a bridge over the Wood River, which will provide a link to Aleknagik on the north shore of the lake, is programmed as part of the Statewide Transportation Improvement Program (STIP).
- The Newhalen Village Road connects to the Iliamna Village Road to link these two communities.
- A road extends 13 miles from Iliamna towards Nondalton. Completion of this roadway, including a new bridge over the Newhalen River, is also programmed as part of the STIP.
- A 15.5-mile earthen road with one lane, and no shoulder now connects Williamsport (which is located on lower, western Cook Inlet) with Pile Bay (located on the east shore of Iliamna Lake). This road, although primitive, is used seasonally to transport gillnetting vessels between Cook Inlet and Bristol Bay. It is also used to transport some freight to Iliamna Lake communities from June through November. In addition, a primitive road extends from Pedro Bay east for part of the distance to Pile Bay.

The small population in the region and the high cost of building and maintaining roads argues against adding a large volume of highway miles in Southwest Alaska. The most effective use of roadways in this part of the state has been in linking communities together that are relatively close to each other geographically, and in improving efficiencies and reliability in the movement of people and goods through the region.



Unalaska-South Channel Bridge

Railroads

There are no railways in Southwest Alaska. Railroads require an even greater investment than roads, and are simply not economically practical in this part of the state. Among the requirements for success not met in Southwest Alaska:

- Long-term, high-yield, high-grade, high-volume resource
- Year-round market (and year-round operation)
- Willing investors
- Suitable terrain (grade, alignment, stability)
- Minimal operational risk (safety, liability)
- Significant backhaul, or something to carry on return trip
- Experienced management team
- Price-competitive with next-best alternatives

Goals and Objectives

Goals and objectives for this regional plan were developed in consultation with the Southwest Alaska Transportation Plan Advisory Committee. The goals and objectives established emphasize more convenient, safe, and efficient transportation based on reliable transportation revenue sources. The established goals for the Southwest Alaska Transportation Plan are listed in Table 3.

These goals and objectives helped to give direction to the overall planning Southwest Alaska Transportation planning effort. A caveat to keep in mind is the fact that total devotion to any particular goal can only come at the expense of others. For planning purposes, each individual goal or objective was viewed in the context of the entire list.



Naknek Container Dock

Table 3

Southwest Alaska Transportation Plan Goals and Objectives

GOAL	ASSOCIATED OBJECTIVES	
Goal 1: Provide Basic Access for Health, Education and Safety Provide communities of Southwest Alaska with usable and safe access to clean water, sanitation, and basic social services, including medical services, schools and law enforcement.	1.	Provide access to aviation facilities which meet sufficient standards to allow for safe and reliable medical evacuations
	2.	Provide and/or maintain facilities allowing regional access into and out of communities having at least 25 permanent year-round residents
	3.	Where practical, provide access to communities via more than one mode of transportation
Goal 2: Assure the Preservation of the Needed Transportation System Preserve and maintain existing transportation facilities and services that have been identified as necessary for both current and future conditions.	1.	Promote reliable revenue mechanisms that provide adequate funding for operation and maintenance of existing and future transportation system
	2.	Implement institutional changes and provide training and skills development at the local government level to allow local operations and maintenance of selected transportation facilities
	3.	Utilize user fees collected (and other funds generated) by a specific facility/service for the preservation and maintenance of those same facilities/services
Goal 3 : Enhance Transportation System Efficiency Provide regional transportation facilities and services in the most efficient and cost-effective way possible	4.	Identify existing facilities or services not needed in the future
	8.	Seek ways to consolidate system O&M requirements (e.g., through consolidating power, landfill, safety/fire, school, fiber-optics, airfields, medical, and harbor facility needs)
	9.	Implement appropriate instrumentation and technological advancements to enhance system efficiency
Goal 4: Improve Transportation Levels of Services Improve the frequency, reliability and quality of regional transportation services.	10.	Provide mechanisms for the dissemination of current travel information so travelers can plan their trips more efficiently
	11.	Identify data collection needs and develop transportation system performance monitoring systems
	12.	Promote competition among regional air service providers
Goal 5: Enhance System Adaptability and Flexibility Develop and maintain a regional transportation system that can effectively adapt to changing physical, economic and demographic conditions with minimum "throw away" costs	13.	Build appropriate institutional relationships involving public and private sector users, providers and regulators of the Southwest Alaska intermodal transportation system for ongoing dialogue on the efficiency of the system
	14.	Identify existing facilities or services not needed in the future
	4.	Implement appropriate instrumentation and technological advancements to enhance system effectiveness
Goal 6: Develop and Protect Economic and Subistence Resources Provide transportation facilities and services that support regional economic vitality while maintaining the region's unique environmental and cultural resources.	5.	Build appropriate institutional relationships involving public and private sector users, providers and regulators of the Southwest Alaska intermodal transportation system for ongoing dialogue on the effectiveness of the system
	8.	Implement appropriate instrumentation and technological advancements to enhance system flexibility
	9.	Provide mechanisms for the dissemination of current travel information so travelers can plan their trips more efficiently
	10.	Reduce regional dependency on funding decisions based on annual legislative appropriations
	11.	Provide transportation services and facilities through local and regional partnerships that do not depend on the allocation of funds through the state legislature
	7.	Eliminate barriers to tourism between communities with plans for service sector growth
	8.	Provide mechanisms for the dissemination of current travel information so travelers can plan their trips more efficiently
	9.	Develop functional access plans that reflect local plans for economic development and local residents needs
	10.	Use transportation infrastructure to enhance desired regional economic development

Public Involvement in the Southwest Alaska Transportation Plan

Public involvement and outreach have been the cornerstones of the Southwest Alaska Transportation Plan. One of the first tasks in project mobilization was to assemble an Advisory Committee to help establish the goals and objectives of the plan, and to provide input throughout the planning process.⁶ The study team and the advisory committee established means to ensure early and continuous public involvement that included the following deliverables and activities:

- The Barton Group and Parsons Brinckerhoff prepared a *Public Process Plan for the Alaska Department of Transportation and Public Facilities*, in October 1997.
- A questionnaire designed to gather information about the region's residents' travel patterns was administered in October 1997.
- Newsletters describing the purpose and goals of the Southwest Alaska Transportation Plan were published in August 1997 and October 1998.
- Southwest Alaska Transportation Plan Advisory Committee Meetings were held on the following dates: September 20, 1997; December 10, 1997; January 30, 1998; June 9, 1998; September 19, 1998; September 16, 1999; and April 6-7, 2001.
- Presentations on progress of the development of the plan were made to the Southwest Alaska Municipal Conference Transportation Committee at meetings in September 1996 (Dillingham), February 1997 (Anchorage), September 1997 (Unalaska), January 1998 (Anchorage), September 1998 (King Salmon), September 1999 (Kodiak), April 2000 (Dillingham), and May 2001 (Unalaska).
- On September 14, 1999, study team members visited Chignik and Port Heiden. Representatives of Chignik, Chignik Lake, and Perryville attended the Chignik meeting.
- On December 6, 1999 the study team met with representatives of the Lower Peninsula Tribal Transportation Commission, including members from Ugashik, Chignik Lagoon, Chignik Lake, Ivanof Bay, Chignik, Perryville, Pilot Point, and Port Heiden.
- A presentation was made to the Bristol Bay Native Corporation at its annual Village Leadership Workshop meeting on December 7, 1999 and again on December 4, 2001.
- Study team members visited Dillingham on January 18, 2000, where two meetings were held: one for the general public and one for freight and passenger air carriers.
- Study team members visited Manokotak on January 19, 2000, where they met with community leaders and members. Trips had also been planned to New Stuyahok and Togiak, but bad weather precluded those visits.

⁶ Dick Jacobsen, Aleutians East Borough; Edwin Anderson, Bristol Bay Borough; Joe Bereskin, City of Akutan; Rick Skonberg, City of Chignik; Chris Napoli, City of Dillingham; Joyce Elvehjem, City of Egegik; Henry Mack, City of King Cove; Carolyn Floyd, City of Kodiak; Thomas Greene, City of Nondalton; Simeon Swetzof, Jr., City of Saint Paul; Glen Gardner, Jr., City of Sand Point; Moses Kritz, City of Togiak; Frank Kely, City of Unalaska; Gary Stevens, Kodiak Island Borough; Glen Alsworth, Sr., Lake and Peninsula Borough; Mark Earnest, Southwest Alaska Municipal Conference; Thomas Tinker, City of Aleknagik; Dugan Nielsen, Bristol Bay Native Association; Roy Matsuno, Lower Peninsula Tribal Transportation Commission.

- A draft plan presentation/meeting was scheduled/conducted in Anchorage on March 11, 2002. Meetings were also conducted in Naknek (March 4) and Seward (April 18) at the request of the individual communities.
- A Southwest Alaska Transportation Plan public involvement website, <http://www.dot.state.ak.us>, sponsored by DOT&PF, has been established and updated throughout the Southwest Alaska Transportation Plan process. This website includes a wide range of materials, including the technical products of this planning effort, project newsletters, a description of the purpose and need for this regional transportation plan, and public comments received by DOT&PF regarding the plan's progress, findings, and direction. DOT&PF responses to constituent correspondence and comments are also posted in the "correspondence reading room." Additionally, the website provides direct contact information for interested users, including links to the statewide planning chief, the area plans coordinator, various area planners, the AMHS, and to the prime consultant project manager.

Purpose and Need

The plan's goals (articulated with the help of the plan's Advisory Committee) provided the starting point for the development of the Purpose and Need Statement for the Plan. The Purpose and Need Statement for a transportation project is the foundation statement describing what is to be improved and why. It serves as a very important screening tool in considering and reviewing transportation alternatives. Those alternatives that reasonably satisfy the Purpose and Need are considered viable solutions to the transportation issues at hand. Those alternatives that do not are rejected from further evaluation in the National Environmental Policy Act (NEPA) project development process.

Since state transportation projects are constructed to meet public travel needs, their primary purpose is to serve the *best overall public interest*. Accordingly, the process used to prepare the Southwest Alaska Transportation Plan relied extensively upon the public expression of transportation needs. Rather than develop a statement of need from the expressions of transportation planners or engineers, or even selected stakeholders (which may not represent the best overall public interest) this plan began with a broad-based, very representative expression of transportation improvements desired by the public in this region.

The primary regional source for guidance came for the plan's Advisory Committee. The Committee was comprised of mayors, or their delegates, and tribal leaders from communities throughout the Southwest Alaska region. These public officials provided a solid source of guidance on transportation concerns, ideas and issues related to the communities they represented.

A source of statewide guidance was provided through the *Customer Satisfaction Survey* about the state transportation department's services. This survey, conducted in June 1998 by the Dittman Research Corporation of Alaska, contained several questions about the Alaska Marine Highway System, and offered a statewide perspective on regional transportation. This survey was based on a statistically valid sample of 512 respondents. A follow-up survey was performed in November 2000 by Craciun Research Group using a statistically valid sample of 1212 respondents, and summarized in the *Marketing Research Report*.

Finally, direct public input received on the draft plan through public meetings, and several written communications from residents and organizations provided an important public expression of transportation need. The high level of support for the plan further supports the state's decision that this plan represents the *best overall public interest*.

Aside from simply serving the public interest, defining an operating strategy for the region's transportation system that meets the public's expectation is simply good business. Meeting these expectations should lead to increased ridership, adding to revenue and reducing the level of state support needed to sustain the ferry system. Many of the local leaders in the planning region noted the importance of a sustainable transportation system throughout the planning process. Based on these various sources of public input Purpose and Need Statement for this project was prepared.

Purpose and Need Statement for Southwest Alaska Transportation Plan Improvements

To improve intra- and inter-regional connectivity by developing transportation links for access and trade, improving transportation safety, service and flexibility in several measures, and improving transportation efficiency for users and the state.

The purpose and need concepts included in Table 4 collectively express the purpose and need of individual projects stemming from this regional transportation plan. Overall, the final transportation plan has largely met these public expressions of Purpose and Need.

Table 4
Purpose and Need for Transportation in Southwest Alaska

Concept	Purpose and Need Strategy	Transportation Concept	Source of Public Expression
Intercommunity links	Identify logical corridors for the efficient movement of people and goods through the region.	Specify transportation corridors based upon historic use, geographic and seasonal considerations, and publicly expressed need.	<u>Advisory committee</u> provided list of missing and underserved roadway and marine links.
		Identify impediments to corridor development.	At several <u>SWAMC meetings</u> , lack of transportation was cited as an impediment to economic growth and diversification.
		Determine logical priority sequence for implementing individual components in a particular corridor	<u>Conversations with local officials and residents</u> cited the cost of and dependency upon passenger air service for movement between communities as a high dissatisfier.
Ferry Service	Increase service in region	Offer ferry service in greater quantity and regularity.	<u>SWAMC meetings and resolutions</u> : The region desired greater service in general, and in particular at times complementary to seasonal demand and economic needs.
		Increase number of port calls, particularly in ferry-dependent communities along the Alaska Peninsula.	<u>Advisory Committee Input</u> : Comments received at meetings cited this need frequently.

Table 4 (Con't)
Purpose and Need for Transportation in Southwest Alaska

Concept	Purpose and Need Strategy	Transportation Concept	Source of Public Expression
Ferry Service	Ferry service efficiency	Improve regularity of service routes from region to mainland to promote consistent, regular use by ferry customers.	<p><u>AMHS Annual Traffic Volume Reports</u>: Consistently demonstrate higher volumes between Homer and Kodiak than between Seward and Kodiak.</p> <p><u>Public Input</u>: Freight users expressed preference for a single Kenai peninsula port of embarkation.</p>
Ferry Service	Roundtrips	Offer the opportunity to depart and return home from the same destination	<u>Advisory Committee Input</u> : The inability in some cases to make a roundtrip due to ferry routes was cited as a strong disincentive to ferry use.
Transportation System Safety	Aircraft fleet modernization	Encourage air carriers to upgrade their inventories with safer, more reliable aircraft by examining potential replacements and factoring their requirements into regional airport planning	<u>Air carriers input</u> : Air carriers cited physical constraints imposed by existing airports on the makeup of their existing fleets, and their high dependency on airframes that are no longer manufactured.
Transportation System Safety	Airport runways	Where physically possible and practical, improve substandard community airports to minimum standard for lighting and runway length	<u>Alaska Aviation Coordination Council</u> adopted 3300-ft minimum runway length recommendation for public rural airport access within the state of Alaska.
Transportation System Efficiency	Improve system usage and lower per trip costs to users and government	<p>Lower costs of goods and services to residents by adding infrastructure that lowers costs of transportation between hub and community.</p> <p>Employ analysis to encourage partnerships and appropriate sharing of costs among all potential beneficiaries.</p> <p>Identify logical marine freight entry points and intermodal transfers as a starting point for potential road networks.</p> <p>Target road improvements that offer possibility for dramatic change in aviation use patterns at local airports</p>	<p>The <u>Advisory Committee</u> frequently expressed the need to reduce the level of user costs and state costs as a defining goal of the plan.</p> <p>The level of state support has been reduced repeatedly by the state legislature, resulting in reduced capability by DOT&PF to operate and maintain roads and airports. A more efficient system is more sustainable, because it encourages beneficiaries to share in the costs, ensuring service over the long term.</p>

Proposed Plan Elements

The Southwest Alaska Transportation Plan is presented in four geographic groupings:

- The Pacific Coast Marine Corridor, including islands from Kodiak through the Aleutians and Pribilofs and the Pacific Coast shoreline of the Alaska Peninsula;
- the Cook Inlet to Bristol Bay Corridor, from the western shoreline of Cook Inlet across to Bristol Bay at the Naknek River;
- the Alaska Peninsula Corridor; and
- the Dillingham/Bristol Bay Area, generally covering the Dillingham Census Area.

Pacific Coast Marine Corridor



Old Harbor

Marine Transportation System

The Alaska Marine Highway System provides frequent ferry service between the Kenai Peninsula and Kodiak and typically seven trips a year from Kodiak to Unalaska, serving communities along the Alaska Peninsula and in the Aleutians. Many communities also have regular barge service throughout the year.

Proposed AMHS Service Improvements

The proposed service concept is to take the *M/V Tustumena* out of service in Prince William Sound (consistent with the recommendations of the *Prince William Sound Transportation Plan*) and dedicate her to service in Southwest Alaska. The following were used as guiding principles for increased service from the *Tustumena* to the Southwest Alaska region:

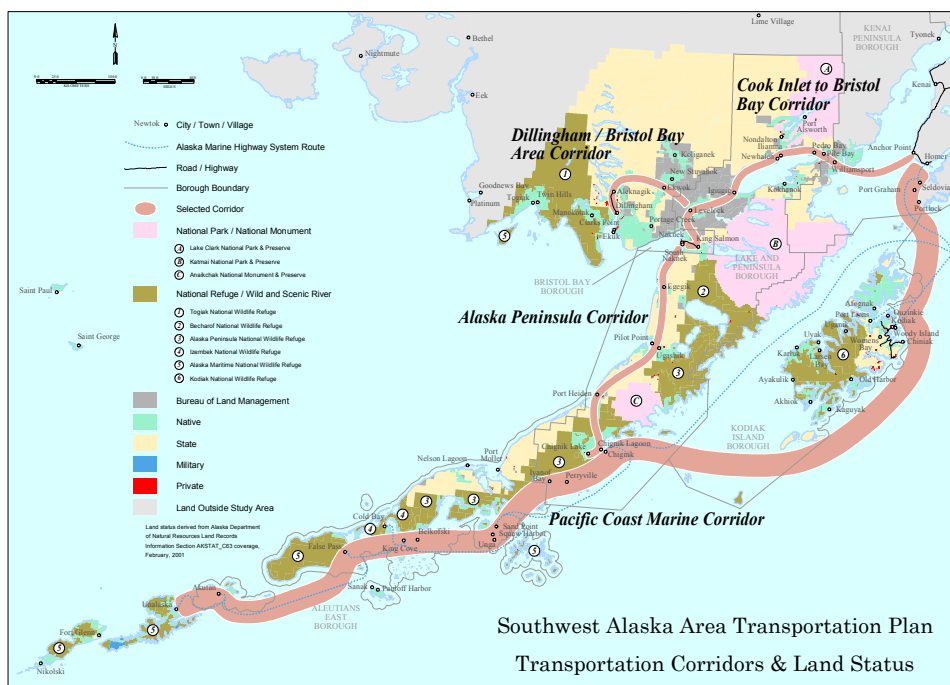
- Service to the southern communities of the Alaska Peninsula and the Aleutian Islands out to Unalaska should be increased, commensurate with service availability and budget constraints.
- The annual number of trips linking Kodiak to the Kenai Peninsula should not be reduced below current levels.

- The annual number of trips linking Port Lions to the Kenai Peninsula should be maintained at or near current levels.
- The annual number of trips linking Port Lions to Kodiak should be maintained at or near current levels.
- Trips linking Kodiak (and/or Port Lions) to Homer may be substituted for trips linking Kodiak (and/or Port Lions) to Seward. Each such substitution has the effect of recovering approximately 3.6 hours of transit time (for a one-way transit) due to the shorter distance between Kodiak and Homer as compared to Kodiak to Seward.
- Homer-Seldovia service should be separate from service between Kodiak (and Port Lions) and Homer in order to maximize available capacity between Kodiak and the mainland. Homer-Seldovia service should remain at or near current levels.
- Service to False Pass should continue as a whistle-stop only one-way (westbound) by the *Tustumena* unless significant traffic demand dictates otherwise.

Once a surface (overland and /or marine) link between King Cove and Cold Bay is in place, it may not be necessary for the *Tustumena* to call at both King Cove and Cold Bay on each scheduled run between Kodiak and Unalaska. The uncertainties with the capability and timing of the link argue for assuming continued service to Cold Bay.

Two variations on the theme are presented herein: (A) a service schedule that would make two trips every four weeks to the Aleutians; and (B) a service schedule that would make one trip to the Aleutians. Under Option A, Kodiak would on average receive service every third day, and the Alaska Peninsula and the Aleutians would receive service twice a month. Under Option B, Kodiak would still receive service approximately every third day, but the Alaska Peninsula and the Aleutians would receive service once a month. Two service schedules would be provided between the Kenai Peninsula and Kodiak, one stopping at Port Lions and the other not.

Figure 2: Pacific Coast Marine Corridor



The complete schedule for Option A, with two trips to the Aleutians per four-week cycle, would be as shown in Table 5.

Table 5
Summary of Model 28-Day Schedule, Option A

Trip Cycle	Round trips, Kodiak to			
	Homer	Port Lions	Seldovia	Aleutians
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Kodiak / Homer / Seldovia	1		1	
Kodiak / Aleutians				1
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Kodiak / Homer / Seldovia	1		1	
Kodiak / Aleutians				1
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Kodiak / Homer / Seldovia	1		1	
Kodiak / Homer	1			
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Total	12	4	6	2



Unalaska

Option B's chief distinction from Option A is that Option B would only provide one trip per four-week cycle to the Aleutians, rather than two. Table 6 summarizes a model 28-day schedule for Option B.

Table 6
Summary of Model 28-Day Schedule, Option B

Trip Cycle	Round trips, Kodiak to			
	Kodiak	Port Lions	Seldovia	Aleutians
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	2			
Kodiak / Homer/ Seldovia	1		1	
Kodiak / Aleutians				1
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Kodiak / Homer/ Seldovia	1		1	
Kodiak / Homer	1			
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Kodiak / Homer	1			
Kodiak / Homer/ Seldovia	1		1	
Kodiak / Homer	1			
Kodiak / Homer/ Seldovia	1		1	
Kodiak / Homer	2			
Kodiak / Port Lions / Homer / Seldovia	1	1	1	
Total	16	4	8	1

Operating costs for *Tustumena* would remain approximately at current levels. Since *Tustumena* would no longer operate in Prince William Sound, the operating costs attributable to Southwest Alaska service would increase by about \$2,000,000 per year, as shown in Table 7. Revenues would cover an estimated 60 percent of the operating costs, requiring an operating subsidy of approximately 40 percent. This is a decreased subsidy percentage compared to current operations, resulting from a focusing of proposed service on more profitable links such as Homer – Kodiak rather than on less profitable links such as Seward – Kodiak.

For illustrative purposes, Table 7 shows proposed operations for *Tustumena* assuming 11 repetitions of the 4-week cycles described above. Actual schedules would be proportionate to demand and service to the Aleutians may be seasonal rather than consistent over 11 months. Since under this plan *Tustumena* becomes an asset exclusive to the Southwest region, a greater degree of scheduling flexibility in response to seasonal variation in demand is expected, given traditionally non-operating periods due to high expectation of adverse weather, as in late fall and mid-winter. Typically these periods would be available windows for maintenance cycle activity.

Table 7
Estimated Annual O&M Cost

	Annual O&M Cost	Estimated Revenues	Net Subsidy Required
Current (1997–1998) <i>Tustumena</i> Operations in Southwest Alaska	\$5,662,000	\$2,526,000	\$3,136,000
Proposed <i>Tustumena</i> Operations in Southwest Alaska			
Option A (assuming 11 4-week cycles)	\$7,719,000	\$4,637,000	\$3,082,000
Option B (assuming 11 4-week cycles)	\$7,717,000	\$4,620,000	\$3,097,000

Navigation and Port and Harbor Improvements



False Pass

Ports and harbors along this corridor are critical to local economies, and in several communities they also support Alaska Marine Highway System operations. Several port and harbor improvement projects are currently programmed as shown in the following table.⁷

⁷ The projects included in this table are based upon a spreadsheet provided by Harold Moeser to Stephanie MacLachlan on March 20, 2001. Only those projects slated for funding by FY 2004 are included.

Programmed Projects (FY 2002–2004)

Location	Description	Estimated Capital Cost
False Pass	Harbor Construction	\$2,500,000
King Cove	Harbor Construction (partial completion 2001)	\$8,900,000
Larsen Bay	Harbor Construction	\$6,000,000
Ouzinkie	Harbor Construction	\$6,100,000
Port Lions	Feasibility Study	\$800,000
Port Lions	Harbor Construction	\$5,000,000
Saint Paul	Harbor Construction	\$18,000,000
Unalaska	Harbor Construction	\$8,000,000

Several other port and harbor improvement projects have been identified as needed, as shown in the following table. The Kodiak project in particular is crucial if additional ferry service is to be provided in Southwest Alaska. Feasibility studies for the Akutan, False Pass and Sand Point projects have been completed. The Chignik project would provide a publicly owned dock at an AMHS port of call. The Unalaska UMC dock study supports the requirement for a suitable ferry landing site at Unalaska, as well as a public facility for cargo handling, storage and staging.

Future Projects

Location	Description	Estimated Capital Cost
Akutan	Coastal Navigation Project	\$12,000,000
Chignik	Public Dock and related infrastructure	\$8,575,000
False Pass	Coastal Navigation Project	\$12,650,000
Kodiak	Anton Larsen Bay Boat Launch	
Kodiak	Improved Dock and Shoreside Facilities for AMHS	\$6,700,000
Sand Point	Harbor Construction	\$11,455,000
Unalaska	UMC Dock Position 1 Concept Study	\$200,000
Unalaska	UMC Position 1 Dock Replacement	\$6,000,000

Air Transportation System

Southwest Alaska communities have expressed a desire for more frequent service, better connections between the communities in the region and beyond, and safer travel conditions. The airlines that serve Southwest Alaska have also called for improvements to make their operations safer and more economical as many of the airports in the region have deficiencies such as insufficient lighting, poor runway surface conditions and short runways.

Opportunities for DOT&PF to improve air travel consist primarily of improvements to the State-owned airports in Southwest Alaska. Demand for air travel can be met through increasing the frequency of service and/or increasing the capacity (i.e., size) of aircraft. Airlines generally find it more cost-effective to fly a larger airplane than to increase the number of flights. Runway length is the primary driver of increasing aircraft capacity as larger aircraft can require longer runways. Determining runway length is a function of a number of factors such as altitude, temperature, takeoff and landing weight (including passenger and cargo) as well as performance characteristics of the aircraft. Because this is a planning-level analysis focusing on a number of airports in Southwest Alaska, it is not possible to incorporate all the factors associated with runway length. Instead, as described in Appendix A, a “design aircraft” was

chosen to support future demand, and the runway lengths were based on the performance characteristics of the proposed aircraft.⁸

A number of aviation improvement projects are currently programmed for airports in the Pacific Coast Marine Corridor⁹:

Programmed Projects (FY 2002–2004)		
Location	Description	Estimated Capital Cost
Atka	Airport Extension and Resurfacing, Stage 1	\$408,750
Atka	Airport Extension and Resurfacing, Stage 2	\$1,000,000
Atka	Airport Extension and Resurfacing, Stage 3	\$12,000,000
Akutan	Master Plan Stage 3	\$1,277,857
Akutan	Airport Development Stage 1	\$4,000,000
Cold Bay	Airport Apron Reconstruction	\$4,700,000
Cold Bay	Cross Wind Runway Resurfacing and Safety Area Expansion	\$5,000,000
False Pass	Airport Master Plan Stage 1	\$85,000
False Pass	Airport Master Plan Stage 2	\$290,000
Karluk	Runway Reconstruction Stage 1	\$205,000
Kodiak	Kodiak City System Plan	\$300,000
Ouzinkie	Airport Master Plan Stage 3	\$259,537
Ouzinkie	Airport Reconstruction /Relocate Stage 1	\$300,000
Port Lions	Airport Master Plan Stage 1	\$85,000
Port Lions	Airport Master Plan Stage 2	\$290,000
Sand Point	Runway Rehabilitation and Extension Stage 1	\$4,750,000
Sand Point	Runway Rehabilitation and Extension Stage 2	\$150,000
Unalaska	Airport Environmental Analysis	\$2,000,000
Unalaska	Airport Safety Improvements	\$3,927,178
Future Projects (FY >2004)		
False Pass	Airport Lighting	\$420,000
Karluk	Runway Reconstruction, Stage 2	\$3,100,000
King Cove	Airport Improvements	\$7,120,000
Old Harbor	Airport Improvements	\$10,000,000
Ouzinkie	Airport Reconstruction/Relocate Stage 2	\$9,000,000
Sand Point	Runway Rehabilitation and Extension Stage 3	\$8,400,000
Sand Point	Runway Rehabilitation and Extension Stage 4	\$4,880,000

¹ Karluk's 2020 projected population is 20. Project justification is based on safety needs and summer enplanement data.

Improvements beyond those programmed are needed for hub airports in the corridor as well as for community airports. FAA's *Alaskan Region 2000 Regional Airports Plan* provides cost estimates for upgrading safety areas as the Part 139 Certificated Airports in Alaska. In the Pacific Coast Marine Corridor these include:

⁸ This analysis builds upon the airport and aviation analysis developed for the Yukon-Kuskokwim Delta Transportation Plan (Airport and Aviation Considerations, *Yukon-Kuskokwim Delta (Y-K Delta) Transportation Plan*, November 21, 1999 as presented by Professor Robert Whitford). The analysis used a two-step approach: 1) to estimate the demand for both passenger and cargo, and 2) to identify how the supply in terms of a design aircraft could meet the demand. The runway length was then determined based on the length needed by the design aircraft. The selection of the design aircraft is described in Appendix A of this report.

⁹ The projects included in this table are based upon the DOT&PF draft FFY 01-05 AIP Spending Plan dated March 27, 2002. Only those projects slated for funding by FY 2004 are included. In an effort to report only projects of regional significance, equipment purchases and other "operational" expenditures are not included.

Safety Area Improvements – Hub Airports

Location	Estimated Capital Cost
Kodiak	\$13,000,000
Unalaska	\$119,000,000 to \$133,000,000

Unalaska's airport is of particular concern in that the current runway length, 3,900 feet, does not meet minimum standards for a fully loaded Boeing 737. The 737-200 that currently serves Unalaska operates with load restrictions. The nominal design runway length for a 737 aircraft is 5,700 feet. Expansion is limited by available land and steep drop-off of water depth at either end of the existing runway. Yet no other suitable site near the community is readily available for a possible relocation. An Airport Master Plan is currently being prepared for Unalaska. It is likely that the estimated cost of the project will be beyond the level that can be funded using the normal federal sources available to Alaska. A special appropriation from Congress would be the most likely mechanism available for the project.

Runway length improvements needed at Community airports in the Pacific Coast Marine Corridor are shown in Tables 8, 9 and 10.



Sand Point Airport

Intermodal Connections

The dominant modes of travel in the Pacific Coast Marine Corridor are by air and sea. Additional transportation facilities are needed to provide connections between the communities in the Corridor and their airports and marine ports and harbors. For most of the corridor these consist of relatively short airport and harbor access roads. More extensive roadway systems serve intermodal needs in Unalaska and Kodiak. In Unalaska several roads connect the community with the airport and numerous public and private docks on Dutch Harbor, Iliuliuk Harbor, and Captain's Bay. In the Kodiak vicinity roads connect with various harbor facilities owned by the State, City, Federal government, and private entities, and State and Municipal airports. Kodiak vicinity roadways also provide access to the Kodiak Launch Complex and a US Coast Guard Loran Station at Narrow Cape.

Table 8
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Kodiak Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway		Adequate for Design Aircraft?	Meet Desired Standard?	Needed Runway		Estimated Capital Cost	
					Length	Width			Length	Width		
Akhiok	100	1,400	203,000	Cessna 208	3,060	60	Yes	No	A-II	3,300	75	\$3,000,000
Karluk	20	1,140	27,000	Cessna 208 ²	2,000	50	No	No	A-II	3,300 ³	75	\$3,100,000
Larsen Bay	110	1,700	149,000	Cessna 208 ²	2,700	75	Yes	No	A-II	3,300 ³	75	\$4,500,000
Old Harbor	280	3,570	378,000	Cessna 208	2,750	60	Yes	No	A-II	3,300 ³	75	\$10,000,000
Ouzinkie ¹	290	3,613	196,000	Piper PA-31 ²	2,085	80	No	No	B-I	4,000 ⁴	75	\$8,500,000
Port Lions ¹	280	2,960	378,000	Cessna 208 ²	2,315	75	No	No	A-II	3,300 ³	75	\$7,000,000

¹ An Airport Master Plan is in progress or is currently scheduled.

² This community could be served by a smaller design aircraft but a consistent design aircraft has been chosen for all community airports served from Kodiak.

³ Due to terrain limitations it may not be possible to construct a full 3,300-foot length.

⁴ Due to terrain limitations it may not be possible to construct a full 4,000-foot length.

Table 9
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Cold Bay Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway		Adequate for Design Aircraft?	Meet Desired Standard?	Needed Runway		
					Length	Width			ARC	Length	Width
King Cove	880	4,220	1,188,000	Cessna 208	3,360	115			Note 1		
False Pass	70	660	142,000	Piper PA-32	2,100	80	Yes	No	A-I	3,300 ²	60
Nelson Lagoon	110	470	297,000	Piper PA-32	4,000	75	Yes	Yes	A-I	ok	ok
											Estimated Capital Cost
											\$4,500,000

¹ Though the King Cove runway meets minimum length standards, the airport's location near mountainous terrain presents a risk, particularly in inclement weather.

² Due to terrain limitations it may not be possible to construct a full 3,300-foot length.

Table 10
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Unalaska Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway Length	Existing Runway Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Needed Runway	Estimated Capital Cost
Adak	400	3,430	2,430,000	Saab 340	7,790	200	Yes	Yes	B-II	ok	ok		NA
Akutan Note 1	570	5,060	385,000	Piper PA-31	Seaplane Base		No	No	B-I	4,000	60		Note 1
Atka Note 2	110	490	446,000	Metro or Beech 1900	3,300	50	No	NA	B-II	4,500	75		Programmed Note 2
Nikolski Note 3	40	220	162,000										

1 Akutan Airport Master Plan (AMP) is being developed 2001-2002. The AMP calls for an airport access road connecting community and harbor with future airport site.

2 Atka appears suitable to use of Beech 1900 for design. The immediacy of the project necessitates design to accommodate Fairchild Metroliner now in use.

3 This airport is currently owned by the United States Air Force (USAF). The USAF intends to excess the Long Rang Radar Site that the airport supports, as well as the airport itself and has requested DOT&PF support in upgrading and maintaining the airport for community access. No agreement has been reached; discussions are ongoing.



Unalaska–Dutch Harbor

Projects currently programmed in the Statewide Transportation Improvement Program include:¹⁰

Programmed Projects (FY 2002–2004)

Location	Description	Estimated Capital Cost
Akutan	Akutan Harbor Access Road Construction. Construct a 2-mile, four-wheeler road from the community to the proposed harbor site at the head of the bay.	\$1,620,000
Kodiak	Rezanof Drive “Y” Intersection Improvement. Rehabilitation of the intersection of Rezanof Drive West, Center Avenue and Lower Mill Bay Road. Rechannalization planned to address safety concerns.	\$2,250,000
Kodiak	Selief Lane Reconstruction. Reconstruct and pave approximately 0.7 miles of Selief Lane. The work will include replacement of existing sewer and waterlines.	\$6,860,000
Kodiak	Kodiak Paving Program 2003. Rehabilitate and pave 10.72 miles of gravel and paved roads in Kodiak.	\$3,576,000
Unalaska	Airport Beach Road Pathway Phase II. Construct two separated and paved pathway segments of approximately 0.94 miles.	\$765,000
Unalaska	South Channel Bridge #1386 Construction. Replace the existing bridge with a concrete deck bridge on a parallel alignment.	\$9,225,000
Unalaska	East Point/Ballyhoo Road Rehabilitation Phase I. Rehabilitate and pave East Point Road from Airport Beach Road to Ballyhoo Road, Ballyhoo Road from East Point Road to the Alaska Ship Supply Store, and Airport Beach Road from Ballyhoo Road to Airport Drive.	\$8,085,000

Other intermodal projects that have been identified include:

Future Projects (FY>2004)

Location	Description	Estimated Capital Cost
Atka	Atxax Way reconstruction	\$1,615,000
False Pass	Airport Access Road	\$1,350,000
King Cove	Cold Bay Airport Access Transportation System	\$28,000,000
Kodiak	Cape Chiniak Road	\$16,900,000
Kodiak	Near Island Bridge Fencing	\$180,000
Kodiak	Otmeloi Way Rehabilitation	\$1,700,000
Kodiak	Pasagshak Road	\$28,293,000
Nelson Lagoon	Airport Access Road rehabilitation	\$815,000
Sand Point	Harbor Access Road	\$2,440,000
Unalaska	Captain’s Bay Road	\$7,165,000

King Cove–Cold Bay Transportation System Improvements

King Cove and Cold Bay are located on the southwestern end of the Alaska Peninsula, approximately 625 air miles southwest of Anchorage. Both communities are on the Pacific Ocean side of the peninsula, separated by a distance of about 18 air miles. Transportation

¹⁰ The projects included in this table are taken from the 2001-2003 Statewide Transportation Improvement Program (Amendment #10 final) dated February 2002. Only projects slated for funding by FY 2004 are included.

between these communities is by air or water, weather permitting. Constructing a reliable and safe year-round surface link between these communities has been under consideration as a needed transportation improvement for some time.

The current air and water transportation alternatives do not afford reliable and safe access to and from the community of King Cove. Air travel is by small plane to and from Cold Bay, and is routinely unreliable, difficult and, on many occasions, unsafe because of severe wind and snow conditions or dense fog, complicated by steep mountainous terrain along the route. In some years, air travel can be curtailed by as much as 50% of the time due to extreme weather in the winter. Numerous problems, including several fatalities, have been encountered over the years trying to provide emergency medical evacuation services. Eleven people have died from small aircraft accidents in or near King Cove since 1980. Travel by air is also very expensive, costing about \$4 per seat mile.

All transportation by boat is done on an ad hoc basis. There is no formal system in place. This mode of travel is also unreliable, costly and time-consuming. In many cases, the same poor weather conditions make marine travel an impossible or treacherous endeavor. The journey by water can often take several hours in difficult and stressful conditions. Neither community possesses adequate facilities to accommodate vessel passenger transportation, which further limits emergency medical transfer and general access using this mode.

The 1995 *Alaska Intermodal Transportation Plan* included an evaluation of several potential transportation improvements, including this link. The need to improve access between the two communities was evaluated based on intermodal considerations and ranked the highest priority compared to six other proposals throughout Alaska. A follow-up reconnaissance study of this link was then conducted. This work identified the following purposes to be served by improved surface access between the two communities:

- (1) increasing the safety, reliability and convenience of travel to and from King Cove;
- (2) reducing the communities' facility infrastructure maintenance and operation burden; and
- (3) strengthening or improving the region's economy by providing a reliable intermodal connection between the Cold Bay Airport and docking and seafood processing facilities in King Cove.

Congressional action in 1998 (PL 105-277 Section 353) provided project specific funding for King Cove airport improvements and a King Cove - Cold Bay road/marine transportation link.

In 1999, the department conducted a more thorough review of this issue, resulting in the publication of the *King Cove–Cold Bay Facilities Concept Report and Assessment of Transportation Need* (published August 2000). The results contained in this document further demonstrate the need and benefits that will accrue from improving surface (ground and/or water) transportation between the two communities. In February 2000 the Aleutians East Borough Assembly designated a road/hovercraft connection between the City of King Cove and the Cold Bay Airport as its preferred transportation system.

Later in the same year, the Borough consummated a memorandum of understanding with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. Requests for proposals were solicited and a third party contractor was selected to perform an environmental impact study (EIS). Information on this project (including a project map) can be found on the Aleutians East Borough website: <http://www.aleutianseast.org/>

Cook Inlet to Bristol Bay Corridor



Iliamna Area, courtesy of Lake & Peninsula School District

Land Transportation System

The Southwest Alaska Transportation Plan proposes the development, over time, of a surface transportation link between Cook Inlet and Bristol Bay. This roadway would improve mobility and access for many communities in the area, including Pedro Bay, Nondalton, Iliamna, Newhalen, Igiugig, Naknek and King Salmon – providing them for the first time with a well developed surface transportation link to the Kenai Peninsula, Anchorage, and the state’s primary roadway network. The road also has significant potential for improving the efficiency of regional freight movement and economic development. Benefits to the region and to the communities along the proposed corridor include the following:

- It would open up a shorter, less dangerous, less expensive freight route from Cook Inlet to Bristol Bay; it would no longer be necessary to transport goods by barge all the way around the Alaska Peninsula.
- By making scenic wilderness areas, businesses, and lodges along the corridor more accessible to visitors, this alternative would support tourism in the region.
- The road would provide the communities of interior Southwest Alaska with greater connectivity to one another, which would promote their economic development.
- The project would promote economic efficiency and diversification in the communities dependent on the Bristol Bay fishery. Boat repair and storage facilities are limited in Bristol Bay, requiring many boat owners to bring their boats to Homer. The overland route would avoid the time-consuming and hazardous open ocean voyage around the Alaska Peninsula, thereby saving money and increasing safety. Use of the route also would save deterioration of fishing boats not designed for extensive open-ocean travel.

The segments of the corridor will need to be developed over time. Table 11 presents a recommended priority order for construction of the segments. It’s likely that only the first two segments, Williamsport to Pile Bay and Naknek to South Naknek might be constructed in the next 20-year period.

Table 11
Recommended Priority Order for Road Construction
Cook Inlet to Bristol Bay Corridor

Segment	Estimated Capital Cost
Williamsport to Pile Bay	\$20,725,000
Naknek to South Naknek	\$30,602,000
Pile Bay to Pedro Bay to Iliamna	\$51,870,000
Iliamna to Igiugig	\$87,880,000
Igiugig to Naknek	\$127,675,000

Table 12 describes cost and effectiveness measures for each of the Cook Inlet to Bristol Bay Corridor roadway segments. The first recommended segment, Williamsport to Pile Bay, has the lowest net annualized cost of the group, while the second segment, Naknek to South Naknek has the lowest net annualized cost per person trip accommodated. The Naknek to South Naknek connection, by providing access for South Naknek residents to the communities on the north side of the Naknek River and to the regional airport at King Salmon, would shift the purpose of the South Naknek airport away from its current role as primary community access. With a bridge connection to South Naknek, the appropriate roles and ownership of all the airports in the Bristol Bay Borough, South Naknek, Naknek and King Salmon, should be re-examined. Projects for this area in the Statewide Transportation Improvement Program include:

Programmed Projects (FY 2002–2004)

Location	Description	Estimated Capital Cost
Iliamna – Nondalton	Iliamna-Nondalton Road completion & Newhalen River Bridge Construction	\$8,300,000
Igiugig	Sanitation Road. Construct approximately 0.3 miles of new gravel surface roadway and widen/resurface another 0.3 miles of existing road.	\$1,200,000
Naknek	Naknek Crossing road link and area aviation needs study ¹	\$100,000
Naknek / King Salmon	In Naknek construct approximately 3.5 miles of bike/ped trails from downtown to Donna G. Subdivision. In King Salmon construct approximately 2.5 miles of trail from downtown to Flat Nose Henry Road.	\$3,150,000

Future Projects

Location	Description	Estimated Capital Cost
King Salmon	King Salmon/Naknek Road Improvements	\$12,593,000
King Salmon	Naknek Lake Access Road improvements	\$3,445,000
Naknek	2 nd Avenue reconstruction	\$837,000
Naknek	Pederson Point Road extension	\$1,750,000
Pedro Bay	Rushing Creek Bridge replacement	\$687,000

¹ Combined \$100k FHWA and \$100k FAA project (see p. 34)

Table 12
Cost and Effectiveness Measures of Proposed Roadway Segments
Cook Inlet to Bristol Bay Corridor

Segment	Cook Inlet to Bristol Bay Roadway System Only					Full System			
	Annual O&M Cost	Annualized Capital Cost @ 7% Interest	Annualized Capital Cost plus O&M Cost	Estimated Annual Freight Cost Savings ¹¹	Net Annualized Cost	Estimated Annual 2020 Person Trips	Net Annualized Cost per Person Trip	Estimated Annual 2020 Person Trips	Net Annualized Cost per Person Trip
Williamsport to Pile Bay	\$209,250	\$1,865,250	\$2,074,500	\$3,554,600	\$0	1,900	\$0.00	5,000	\$0.00
Pile Bay to Pedro Bay to Iliamna	\$513,000	\$4,896,160	\$5,409,200	\$754,100	\$4,655,100	22,900	\$203.28	33,300	\$139.79
Iliamna to Igiugig	\$756,000	\$8,295,250	\$9,051,300	\$89,300	\$8,962,000	115,800	\$77.39	126,300	\$70.96
Igiugig to Naknek	\$1,012,500	\$12,051,620	\$13,064,100	\$2,076,600	\$10,987,500	127,500	\$86.18	214,450	\$51.24
Naknek to South Naknek	\$61,290	\$2,754,180	\$2,815,470	\$340,100	\$2,475,370	115,400	\$21.45	278,300	\$8.89

¹¹ The calculation of freight cost savings is described in Appendix B of this report.

Air Transportation System

A number of aviation improvement projects are currently programmed for airports in the Cook Inlet to Bristol Bay Corridor¹²:

Programmed Projects (FY 2002–2004)

Location	Description	Estimated Capital Cost
Iliamna	Paving and Fencing Stage 1	\$6,400,000
Iliamna	Paving and Fencing Stage 2	\$150,000
Kokhanok	Airport Improvements	\$4,128,000
Naknek	Airports Multi-modal Analysis ¹	\$100,000
Nondalton	Airport Improvements & ALP	\$450,000

Future Projects (FY>2004)

Location	Description	Estimated Capital Cost
King Salmon	Airport Improvements Stage 1	\$10,140,000
King Salmon	Airport Improvements Stage 2	\$10,000,000
Kokhanok	Runway Extension	\$3,800,000
Naknek	Airport Improvements ²	\$12,400,000
South Naknek	Runway and Crosswind Runway Rehabilitation	\$2,200,000

¹ Combined \$100k FAA and \$100k FHWA project (see p. 32)

² Need generated from Naknek Airport Master Plan, but not recommended by Southwest Transportation Plan (pending completion of Naknek crossing road link and area aviation needs study)



Kokhanok Airstrip

Runway length improvements needed at Community airports in the Cook Inlet to Bristol Bay Corridor are shown in Tables 13 and 14.

¹² The projects included in this table are based upon the DOT&PF draft FFY 01-05 AIP Spending Plan dated March 27, 2002. Only those projects slated for funding by FY 2004 are included. In an effort to report only projects of regional significance, equipment purchases and other "operational" expenditures are not included.

Table 13
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Iliamna Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.) ¹	Assumed Design Aircraft	Existing Runway Length	Existing Runway Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Needed Runway Estimated Capital Cost
Kokhanok	250	2,050	506,000	Cessna 208	2,900	60	Yes	No	A-II	3,300	75	\$3,800,000
Pedro Bay	60	590	122,000	Cessna 208	3,000	65	Yes	No	A-II	3,300	75	\$2,500,000
Port Alsworth	150	850	1,013,000					Note 3				

¹ Assumes implementation of Williamsport to Pile Bay road and harbor improvements.

² Due to terrain limitations it may not be possible to construct a full 3,300-foot length.

³ This airport is not owned and operated by Alaska DOT&PF.

Table 14
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with King Salmon Hub¹

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.) ²	Assumed Design Aircraft	Existing Runway Length	Existing Runway Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Needed Runway Estimated Capital Cost
Igiugig	90	580	182,000	Piper PA-32	3,000	75	Yes	No	A-I	3,300	75	\$1,000,000
Levelock	170	1,160	574,000	Piper PA-32	3,280	75	Yes	Yes	A-I	ok	ok	NA
Naknek	860	Note 3		Piper PA-32	1,950	60	Yes	No	A-1	3,300	75	\$23,538,000
South Naknek	170	Note 3		Piper PA-32	3,310	60	Yes	Yes	A-1	3,300	75	\$2,200,000

¹ Community airports in Egegik, Pilot Point, and Ugashik that are served through the King Salmon hub are discussed in the following section, Alaska Peninsula Corridor.

² Assumes implementation of Williamsport to Pile Bay road and harbor improvements.

³ Naknek and South Naknek airport use patterns would undoubtedly be affected by a road crossing of the Naknek River. This question warrants a road link and area aviation needs study of the King Salmon/Naknek/South Naknek communities.

Completion of the Newhalen River Road to Nondalton will provide Nondalton residents with land access to the regional airport at Iliamna. Construction of a bridge and road connection from South Naknek to Naknek would similarly provide South Naknek residents with land access to the regional airport at King Salmon. Thus the airports at Nondalton and South Naknek would see altered aviation use patterns as a result. The roles of these airports and the question of their continued ownership and operation by DOT&PF warrants further study as the road projects are developed.

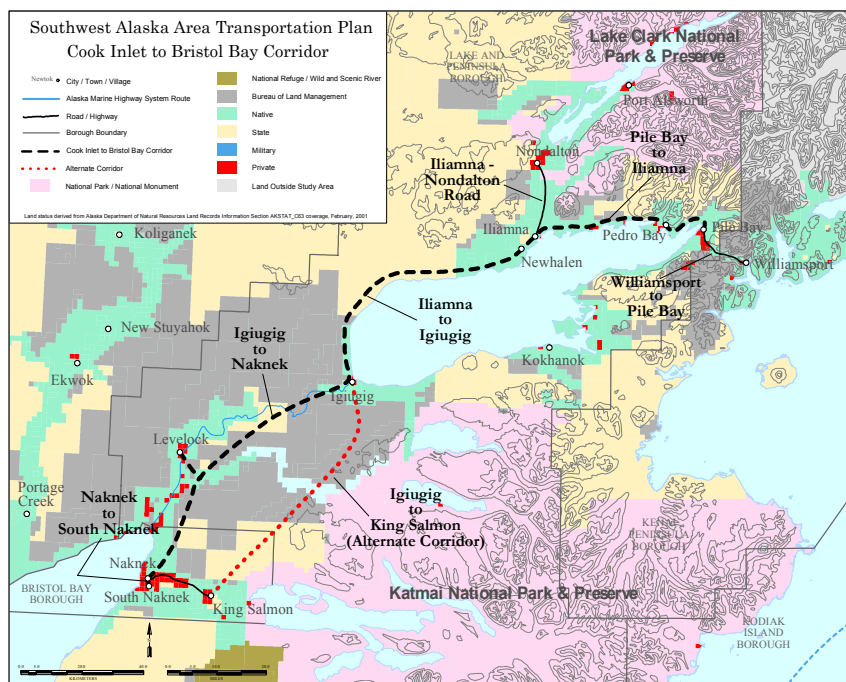
Intermodal Connections

With development of the Cook Inlet to Bristol Bay roadway system, the primary modes for travel in the corridor will be by land and by air. The most significant intermodal connection needed will include dock and harbor facilities at Williamsport and Pile Bay to connect marine traffic in Cook Inlet to the roadway system:

Proposed Projects		
Location	Description	Estimated Capital Cost
Williamsport	Navigation Improvements	\$3,822,000
Pile Bay	Public Dock and Boat Launch	\$1,200,000

Additional marine facilities may also be needed at communities on Iliamna Lake, particularly in the time period after construction of the Williamsport to Pile Bay Road but before construction of remaining segments of the Cook Inlet to Bristol Bay roadway system. During this interim period freight carried over the road from Williamsport to Pile Bay would be transported over the lake to the other communities.

Figure 3: Cook Inlet to Bristol Bay Corridor



Alaska Peninsula Corridor



Pilot Point

Land Transportation System

The Southwest Alaska Transportation Plan proposes the development, over time, of a roadway system along and across the Alaska Peninsula. Ultimately this system could connect to the Cook Inlet to Bristol Bay roadway system at South Naknek and extend on the south to Ivanof Bay. The roadway system would provide many of the same sorts of benefits to Alaska Peninsula communities as the benefits of the Cook Inlet to Bristol Bay roadway system described in the previous section. As with the Cook Inlet to Bristol Bay roadway system, a key component of the Alaska Peninsula roadway system is providing inland communities and communities on Bristol Bay with a road connection to a all-season port. In the case of the Alaska Peninsula roadway, this intermodal connection would occur at Chignik. This would afford Alaska Peninsula residents not only access to ship and barge freight services at Chignik but also access to AMHS service to the Aleutians, Kodiak and the Kenai Peninsula.

The roadway segments in the corridor will need to be developed over time. Table 15 presents a recommended priority order for construction of the segments. The first priority segment would be the Chignik Intervillage Road, followed by a trans-Peninsula connection between Chignik and Port Heiden.

Figure 4: Alaska Peninsula Corridor

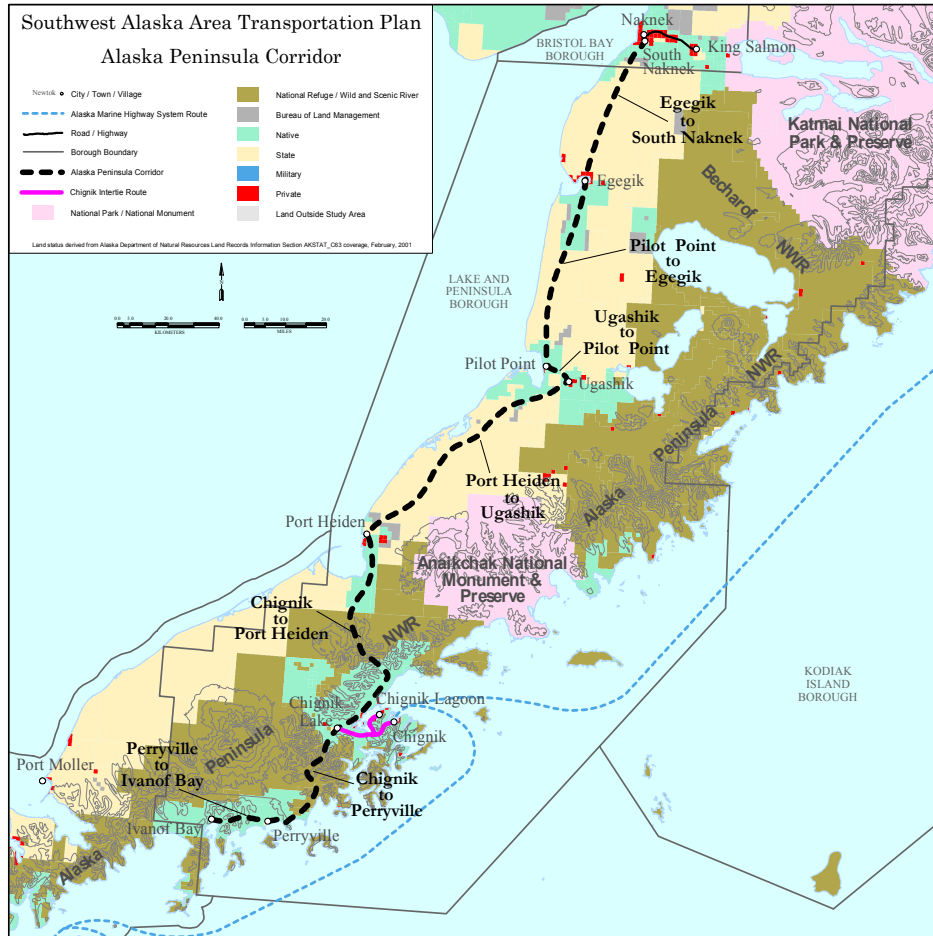


Table 16 describes cost and effectiveness measures for each of the Alaska Peninsula roadway segments. The first recommended segment, the Chignik Intervillage Road, is the only segment listed that is likely to be built within the next 20 years. It has the lowest net annualized cost per person trip accommodated and the second lowest net annualized cost. The Chignik Intervillage Road also serves an intermodal purpose. Connecting the three villages in the Chignik Bay area would reduce the need for a separate airport at each village and might allow for a single airport to serve all three villages. For this reason an airport master plan should be initiated concurrent with the road project to determine aviation needs with the road in place and to plan suitable solutions for the residents connected by the road. In addition, the Chignik Intervillage Road would provide Chignik Lake and Chignik Lagoon with access to the seaport facilities at Chignik. The next logical link would be an extension of the road network to Port Heiden, linking the Chigniks with the very capable and comparatively more reliable air facility at Port Heiden. The development of this next link depends upon population growth, economic growth and the adequacy (or inadequacy) of airport improvements in the Chigniks for meeting community needs.

Table 15
Recommended Priority Order for Road Construction
Alaska Peninsula Corridor

Segment	Estimated Capital Cost
Chignik Intervillage Road	\$28,146,000
Chignik to Port Heiden	\$84,630,000
Chignik to Perryville	\$56,166,500
Perryville to Ivanof Bay	\$13,650,000
Port Heiden to Ugashik	\$119,847,000
Ugashik to Pilot Point	\$53,067,000
Pilot Point to Egegik	\$74,802,000
Egegik to South Naknek	\$129,205,000

Air Transportation System

A number of aviation improvement projects are currently programmed for airports in the Alaska Peninsula Corridor¹³:

Programmed Projects (FY 2001–2004)

Location	Description	Estimated Capital Cost
Chignik Lagoon	ALP Update	\$60,000
Egegik	Runway Extension and Resurfacing and Crosswind Runway	\$5,135,000
False Pass	Airport Master Plan Stage 1	\$85,000
False Pass	Airport Master Plan Stage 2	\$290,000
Ivanof Bay	Airport Master Plan Stage 1	\$75,163
Ivanof Bay	Airport Master Plan Stage 2	\$265,000
Perryville	Airport Improvements Stage 1	\$230,000
Port Heiden	Runway Resurfacing and Safety Area Expansion	\$4,100,000

Future Projects (FY>2004)

Location	Description	Estimated Capital Cost
Chignik area	Tri-community Airport Master Plan ¹	\$400,000
Chignik	Airport Lighting and Resurfacing	\$1,400,000
Chignik Lagoon	Interim Improvements ²	\$1,000,000
Chignik Lake	Airport Improvements	\$2,800,000
Perryville	Airport Improvements Stage 2	\$2,500,000
Pilot Point	Runway Extension	\$3,000,000

¹ Southwest Transportation Plan recommendation. Not previously on Aviation Needs List

² Need documented on Aviation Needs List but project should be reevaluated pending completion of tri-community Airport Master Plan

¹³ The projects included in this table are based upon the DOT&PF draft FFY 01-05 AIP Spending Plan dated March 27, 2002. Only those projects slated for funding by FY 2004 are included. In an effort to report only projects of regional significance, equipment purchases and other "operational" expenditures are not included.

Table 16
Cost and Effectiveness Measures of Proposed Roadway Segments
Alaska Peninsula Corridor

Segment	Alaska Peninsula									
	Roadway System Only					Full System				
	Annual O&M Cost	Annualized Capital Cost @ 7% Interest	Annualized Capital Cost plus O&M Cost	Estimated Annual Freight Cost Savings	Net Annualized Cost	Estimated Annual 2020 Person Trips	Net Annualized Cost per Person Trip	Estimated Annual 2020 Person Trips	Net Annualized Cost per Person Trip	
South Naknek to Egegik	\$877,500	\$12,196,040	\$13,073,500	\$0	\$13,073,500	–	NA	149,500	\$87.45	
Egegik to Pilot Point	\$739,800	\$7,060,780	\$7,800,600	\$367,300	\$7,433,300	21,300	\$348.98	120,100	\$61.89	
Pilot Point to Ugashik	\$159,300	\$5,009,150	\$5,168,500	\$469,000	\$4,699,500	31,800	\$147.78	95,200	\$49.36	
Ugashik to Port Heiden	\$1,185,300	\$11,312,710	\$12,498,000	\$35,700	\$12,462,300	32,400	\$384.64	93,300	\$133.57	
Port Heiden to Chignik	\$837,000	\$7,988,470	\$8,825,500	\$639,500	\$8,186,000	42,700	\$191.71	71,100	\$115.13	
Chignik Intervillage Road	\$305,100	\$2,911,930	\$3,217,000	\$1,094,800	\$2,122,200	109,600	\$19.36	110,800	\$19.15	
Chignik to Perryville	\$541,350	\$5,301,720	\$5,843,100	\$445,800	\$5,397,300	26,800	\$201.39	27,500	\$196.27	
Perryville to Ivanof Bay	\$135,000	\$1,288,460	\$1,423,500	\$73,000	\$1,350,500	12,500	\$108.04	12,800	\$105.51	

Runway length improvements needed at Community airports in the Alaska Peninsula Corridor are shown in Tables 17 and 18.

Table 18 includes the development of a Chignik Area airport master plan, which assumes construction of the Chignik Intervillage Road. Connecting the three villages in the Chignik Bay area would reduce the need for a separate airport at each village and might allow for closure of one or more of the existing tri-community airports. The airport master plan will likely recommend significant improvements to one of the existing tri-community airports or construction of a new airport at a new location.

Intermodal Connections

Currently programmed intermodal projects in the Alaska Peninsula Corridor include the following:

Programmed Projects (FY 2002–2004)		
Location	Description	Estimated Cost
Chignik Bay	Airport Access Road Rehabilitation. Reconstruct and resurface with gravel approximately 1.8 miles of road between the City's new school/Norquest Fisheries and the airport. Analyze rock slopes adjacent to the road to identify appropriate mitigation measures to address ice and rockfall problems. Include drainage improvements.	\$3,170,000
Perryville	Harbor Feasibility Study	\$600,000

Another intermodal project that has been identified is:

Future Project		
Location	Description	Estimated Capital Cost
Pilot Point	Ugashik River Road. Construct 4.9 miles of gravel road from the new Pilot Point landfill to the Ugashik River and a new boat-landing site.	\$7,100,000

In addition, other projects in the Chignik area, previously mentioned, will facilitate intermodal connections. These include the Chignik Intervillage Road and Chignik Area airport master plan discussed earlier in this section and the Chignik Public Dock, which was included as a project in the Pacific Coast Marine Corridor because of it would serve AMHS service in that corridor.

Table 17
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with King Salmon Hub¹

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway Length	Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Needed Runway Estimated Capital Cost
Egegik ²	170	2,850	1,033,000					Note 2				
Pilot Point	160	1,120	1,296,000	Cessna 208	3,200	75	Yes	Yes	A-II	ok	ok	NA
Ugashik	10	330	122,000	Cessna 208	3,000	60	Yes	No	A-II	3,300	75	\$2,500,000

¹ Community airports in Igiugig and Levelock that are served through the King Salmon hub are discussed in the prior section, Cook Inlet to Bristol Bay Corridor.
² This airport is not owned and operated by Alaska DOT&PF.

Table 18
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Port Heiden Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway Length	Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Needed Runway Estimated Capital Cost
Chignik Area ¹	430	3,470	348,000	Cessna 208	1,600	60	No ²	No	A-II	3,300	75	Unknown
Ivanof Bay ⁵	20	670	41,000	Piper PA-32	Seaplane Base		No	No	A-I	3,300	60	Unknown
Perryville	140	860	378,000	Piper PA-32	2,500	100	Yes	No	A-I	3,300	60	Programmed

¹ Assumes implementation of the Chignik Intervillage Road and development of a Chignik tri-community airport master plan
² Chignik Lagoon
³ Chignik
⁴ Chignik Lake
⁵ Ivanof Bay Airport Master Plan will determine appropriate aviation improvements at this community.

Dillingham/Bristol Bay Area



Twin Hills vicinity

Land Transportation System

In the Dillingham/Bristol Bay Area the Southwest Alaska Transportation Plan recommends the development, over time, of a roadway connection between Dillingham and the Cook Inlet to Bristol Bay roadway system. The initial portion of this road would connect Dillingham with Aleknagik, through projects currently programmed or under development:

Programmed Projects (FY 2002–2004)

Location	Description	Estimated Cost
Aleknagik	North Shore Landfill Road. Construct 1.5 miles of road to access a proposed new landfill and sewage lagoon.	\$1,215,000
Dillingham	Wood River Road reconstruction, Phase 2 and 3	\$1,225,000
Dillingham	Dillingham Downtown Streets Rehabilitation, Phase 2	\$225,000

Future Projects

Location	Description	Estimated Cost
Aleknagik	Wood River Bridge	\$7,010,000
Clark's Point	Clark's Point – Ekuk Road	\$4,750,000
Dillingham	Coastal Trail construction	\$1,591,000
Dillingham – Aleknagik	Dillingham – Aleknagik Road, MP 8–23	\$21,050,000
Dillingham	Wood River Road reconstruction, Phases 4 and 7	\$3,285,000

The remainder of the roadway connection between Dillingham and the Cook Inlet to Bristol Bay road would be developed over time, starting with a connection between Levelock and the Igiugig to Naknek road, then followed by the segment between Levelock and Aleknagik, as shown in Table 19. These corridors are not envisioned in the next 20 years. Until the Cook Inlet to Bristol Bay corridor is fully developed, there is little justification for investing the resources needed to develop and maintain these road segments.

Table 19
Recommended Priority Order for Road Construction
Dillingham/Bristol Bay Area

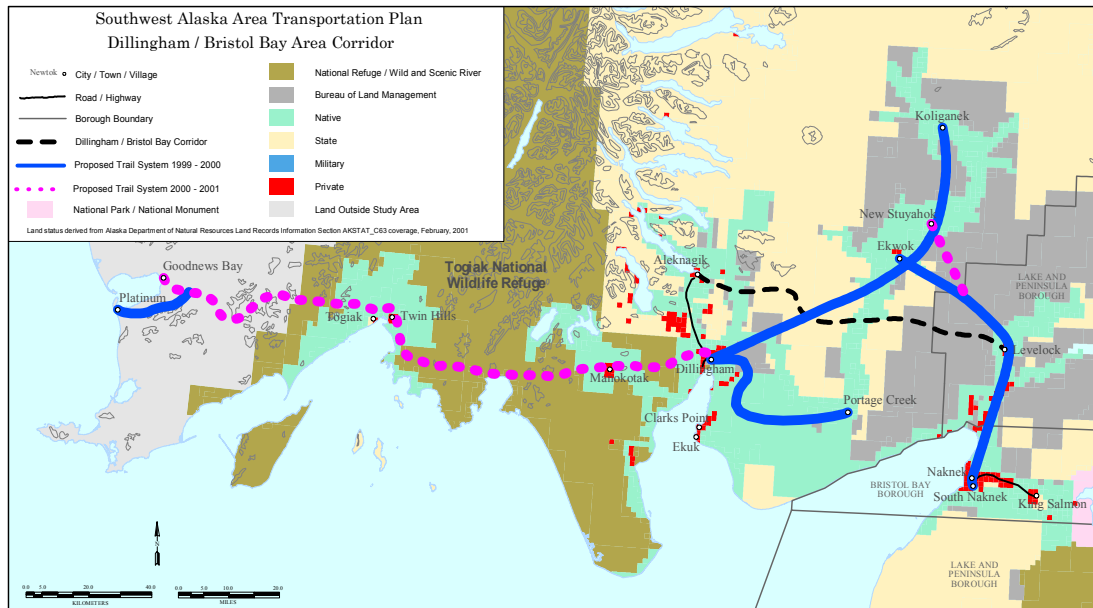
Segment	Estimated Capital Cost
Jct. w/ Igiugig Road to Levelock	\$43,635,000
Levelock to Aleknagik	\$167,240,000

Table 20 describes cost and effectiveness measures for these two roadway segments.

Table 20
Cost and Effectiveness Measures of
Proposed Roadway Segments
Dillingham/Bristol Bay Area

Segment	Annual O&M Cost	Annualized Capital Cost @ 7% Interest	Annualized Capital Cost plus O&M Cost	Estimated Annual Freight Cost Savings	Net Annualized Cost	Full System	
						Estimated Annual 2020 Person Trips	Net Annualized Cost per Person Trip
Jct. w/ Igiugig Road to Levelock	\$256,500	\$4,118,840	\$4,375,300	\$574,500	\$3,800,800	307,500	\$12.36
Levelock to Aleknagik	\$972,000	\$15,786,270	\$16,758,300	\$4,431,100	\$12,327,200	311,200	\$39.61

Figure 5: Dillingham - Bristol Bay Corridor



Air Transportation System

A number of aviation improvement projects are currently programmed for airports in the Dillingham/Bristol Bay Area¹⁴:

Programmed Projects (FY 2001–2004)

Location	Description	Estimated Capital Cost
Dillingham	Runway Rehabilitation	\$4,500,000
Dillingham	Airport Master Plan Update	\$442,609
Ekwok	Airport Rehabilitation	\$6,000,000
Manokotak	Airport Runway Resurface and Extension	\$2,750,000
New Stuyahok	Airport Relocation	\$6,675,000
St. George	Airport Improvements - Stage 1	\$500,000
St. Paul	Airport Improvements - Stage 1	\$1,500,000

¹⁴ The projects included in this table are based upon the DOT&PF draft FFY 01-05 AIP Spending Plan dated March 27, 2002. Only those projects slated for funding by FY 2004 are included. In an effort to report only projects of regional significance, equipment purchases and other "operational" expenditures are not included.

Additional projects for the corridor area are included below:

Future Projects (FY>2004)		
Location	Description	Estimated Capital Cost
Aleknagik	Airport Improvements	\$3,000,000
Clark's Point	Airport Relocation Stage 2	\$2,500,000
Clark's Point	Airport Runway Extension Stage 2	\$4,000,000
Dillingham	GA Crosswind Runway Construction	\$7,500,000
Dillingham	Partial Parallel Taxiway Construction	\$2,000,000
Koliganek	Airport Resurfacing	\$400,000
New Stuyahok	Airport Runway Extension	\$5,000,000
St George	Airport Improvements	\$6,875,000
St Paul	Airport Improvements - Stage 2	\$5,775,000
Togiak	Airport Improvements	\$2,300,000

Runway length improvements needed at Community airports in the Dillingham/Bristol Bay Area are shown in Table 21.

Proposed improvements to the airport at Aleknagik should be reevaluated based upon completion of the Dillingham to Aleknagik Road, which will provide Aleknagik residents with land access to the regional airport at Dillingham. Thus the airport at Aleknagik may no longer be needed to serve as the primary access from the communities to other locations within and outside of Southwest Alaska. The role of the airport and the question of its future ownership and operation warrants further consideration as the road project is developed.

Intermodal Connections

The Wood River Road Reconstruction project will improve access from Dillingham to the Wood River Landing on the Wood River system. The landing is an important gateway to Wood-Ticchik State Park, and provides an alternate landing site for certain ocean-going watercraft accessing Dillingham from Bristol Bay.

Future intermodal projects will likely consist of improved roadway connections between communities and their airports and, where relevant, their marine facilities. Only limited marine facilities exist in the area, with community service ports at Dillingham, Aleknagik, Clark's Point, St. Paul and St. George.

Figure 6: Dillingham Area Improvements

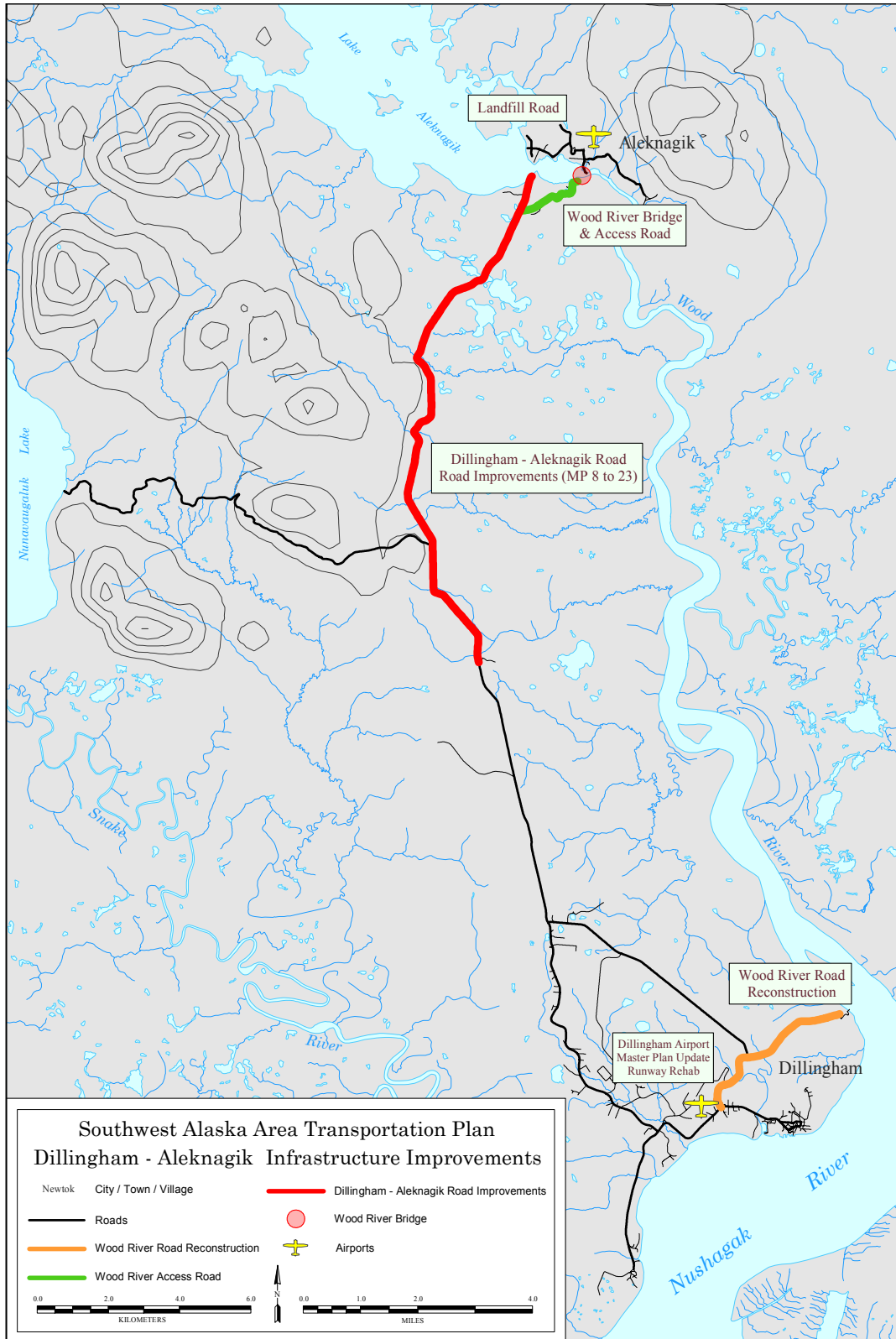


Table 21
Cost and Effectiveness Measures of Proposed Airport Runway Extensions
Community Airports Associated with Dillingham Hub

	Projected 2020 Population	Projected 2020 Enplanements	Projected 2020 Air Freight (lbs.)	Assumed Design Aircraft	Existing Runway Length	Existing Runway Width	Adequate for Design Aircraft?	Meet Desired Standard?	ARC	Length	Width	Estimated Capital Cost
Clark's Point	100	2,620	338,000	Piper PA-32	3,100	60	Yes	No	A-I	3,300	60	\$4,000,000
Portage Creek	40	250	108,000	Piper PA-32	1,920	60	Yes	No	A-I	3,300	60	\$3,500,000
Ekwok	200	1,710	675,000	Cessna 208	2,720	75	Yes	No	A-II	3,300	75	\$4,100,000
Koliganek	260	2,530	1,053,000	Cessna 208	3,000	75	Yes	No	A-II	3,300	75	\$1,000,000
New Stuyahok	670	4,720	2,261,000	Cessna 208	3,100	75	Yes	No	A-II	3,300	75	\$6,675,000
Manokotak	540	4,310	1,823,000	Cessna 208	2,740	75	Yes	No	A-II	3,300 ¹	75	\$2,750,000
Twin Hills	90	740	304,000	Cessna 208	3,000	60	Yes	No	A-II	3,300	75	\$2,500,000
Togiak	1,180	7,370	3,983,000	Beech 1900	4,400	100	No	No	B-II	ok	ok	\$2,300,000

¹ Due to terrain limitations it may not be possible to construct a full 3,300-foot length.

Alternatives Development and Analysis

The first step in developing transportation alternatives for the Southwest Alaska Transportation Plan occurred at a June 1998 meeting of the Southwest Alaska Transportation Plan Advisory Committee, where key deficiencies in terms of both overland and marine links at the regional level were identified. These deficiencies took the form of missing or underserved links between and among the region's communities. In addition to the links offered by the Advisory Committee, the consultant team identified a few other linkages, which if completed in addition to the set of critical links, would constitute a complete, coherent regional transportation network. The meeting identified missing or underserved marine links and overland links, which are summarized in Table 22. Deficiencies in aviation options were also noted, although at a somewhat broader level. For the purposes of intermodal connectivity and systems integration, the meeting also identified the region's natural transportation hubs (Table 23).

Table 22
Critical Missing or Underserved Marine and Roadway Links

Critical Missing or Underserved Marine Links	Critical Missing or Underserved Roadway Links
Homer–Williamsport–Kodiak	Williamsport–Pile Bay
Iliamna Lake	Iliamna–Pedro Bay–Pile Bay
Kvichak River	Newhalen–Iliamna–Nondalton
Togiak–Clarks Point–Dillingham–Naknek– Egegik (Bristol Bay)	Dillingham–Aleknagik
Intra-Kodiak Island Borough	South Naknek–Naknek–King Salmon
King Cove–Cold Bay	Ivanof Bay–Perryville
King Cove–Cold Bay–False Pass	Perryville–Chigniks
St. Paul–St. George	Chignik Bay–Chignik Lagoon–Chignik Lake
Unalaska–Pribilofs–Dillingham	Chigniks–Port Heiden
Unalaska–Akutan	Port Heiden–Pilot Point
	Pilot Point–Ugashik
	King Cove–Cold Bay

Table 23
Southwest Alaska's Subregional "Hubs"

Primary	Secondary
Dillingham	St. Paul
Iliamna	King Cove/Cold Bay* (USPS hub)
King Salmon/Naknek	Port Heiden (USPS hub)
Kodiak	
Unalaska	

* The communities of King Cove and Cold Bay could only function as a joint regional hub if a road or ferry connection between the two were developed.

The next step in the alternatives development process involved researching and specifying service concepts with which to address the identified transportation deficiencies. Taking the list of critical missing or underserved marine and roadway links as its starting point, the consultant team researched what would be required in terms of new infrastructure and/or service to address the implied needs.

In some cases, service concepts addressing specific links had already been conceived, studied, and prioritized – most notably several of the roadway concepts. In other cases, however, including all of the marine service concepts, and many of the roadway concepts, the proposed infrastructure or services are new. As such, developing these service concepts from the ground up required extensive research. Among the issues that had to be explored were the estimation of capital and operating costs, model schedules, and identification of environmental constraints. Table 24 contains a list of the concepts designed to address these missing or underserved links. The concepts designed to serve these missing or underserved critical links were presented at a September 1998 Advisory Committee meeting at SWAMC in King Salmon. Based on comments received at this meeting, more frequent AMHS service to Sand Point was added.

Once the consultant team had fleshed out the isolated service concepts, the effort to integrate the concepts into an interconnected system of discrete transportation alternatives began to take shape. A milestone at this point in the process was the March 1, 1999, strategy session in Anchorage, attended by the project team, including consultants and DOT&PF staff.¹⁵ During this all-day session, the consultants and DOT&PF staff made strategic decisions, based on preliminary analyses, as to which concepts to further develop, and in what fashion.

Consequently, the consultant team moved the alternatives development process forward by developing several new alternatives; reconfiguring, revising, and refining several existing concepts into more detailed alternatives; and dropping from further consideration two marine concepts whose likely benefits would be far outweighed by their high costs. The two concepts withdrawn at this point were: (1) marine service between St. Paul and St. George; and (2) marine service among Unalaska, the Pribilofs, and Dillingham. The results of this step in the process are summarized in Table 25, Table 26, and Table 27.

¹⁵ The consultants represented at this meeting were Parsons Brinckerhoff, HDR, Northern Economics, and The Glosten Associates. DOT&PF staff in attendance were Jeff Ottesen, Eric Taylor, Jennifer Wilson, Murph O'Brien, Roger Maggard, and Mark Mayo.

Table 24
Marine and Roadway Concepts Developed to Address Critical Missing or Underserved Transportation Links

Concepts Developed to Address Missing or Underserved Marine Links	<ul style="list-style-type: none"> ▪ Homer–Williamsport–Kodiak Marine Link ▪ Iliamna Lake–Kvichak River Marine Link ▪ Bristol Bay Marine Link ▪ Intra-Kodiak Island Borough Marine Link ▪ King Cove–Cold Bay Marine Link ▪ King Cove–Cold Bay–False Pass Marine Link ▪ St. Paul–St. George Marine Link ▪ Unalaska–Pribilofs–Dillingham Marine Link ▪ Unalaska–Akutan Marine Link
Concepts Developed to Address Missing or Underserved Overland Links	<ul style="list-style-type: none"> ▪ Williamsport–Pile Bay Roadway Link ▪ Iliamna–Pedro Bay–Pile Bay Roadway Link ▪ Newhalen–Iliamna–Nondalton Roadway Link ▪ Dillingham–Aleknagik Roadway Link ▪ South Naknek–Naknek Roadway Link ▪ Ivanof Bay–Perryville Roadway Link ▪ Perryville–Chigniks Roadway Link ▪ Chignik Bay–Chignik Lagoon–Chignik Lake Roadway Link ▪ Chigniks–Port Heiden Roadway Link ▪ Port Heiden–Pilot Point Roadway Link ▪ Pilot Point–Ugashik Roadway Link* ▪ King Cove–Cold Bay Roadway Link ▪ Egegik–King Salmon Roadway Link*
Concepts Developed to Improve Aviation Service	<ul style="list-style-type: none"> ▪ Development of a Southwest Alaska Aviation Hub ▪ Establishment of criteria for use in determining how to best focus airport development resources

Table 25
Revisions to the Initial List of Marine Transportation Alternatives
for the Southwest Alaska Transportation Plan

Alternative	Action	Notes
Dedicated <i>Tustumena</i> in Southwest Alaska	Develop a new alternative, wherein the <i>Tustumena</i> is dedicated to service in SW Alaska.	To provide a more interconnected regional system, and to provide isolated communities another modal option.
Homer–Williamsport–Kodiak Marine Link	Revise existing concept; in particular, drop Kodiak from proposed circuit; reconfigure as Homer – Williamsport with complementary service between Homer and Seldovia.	Dedicated <i>Tustumena</i> or Intra-Kodiak Island Borough Marine Link would provide service to Kodiak. Seldovia would lose service with the dedicated <i>Tustumena</i> , so this marine link would replace that service.
Iliamna Lake–Kvichak River Marine Link	Revise existing concept; in particular, evaluate feasibility of hovercraft service. Revisit appropriateness of shallow-draft landing craft in light of possible tourist growth.	The hovercraft offers the possibility of extended season service as hovercraft could operate over shoal waters in the Kvichak River and over ice, which the shallow-draft landing vessel initially researched could not accomplish.
Bristol Bay Marine Link	Retain	Limited operability is an issue: service would only be feasible from May to October. Shallow water at ports served further limits operability because of tide-related delays.
Intra-Kodiak Island Borough Marine Link	Retain	Candidate for local ownership, operation, and maintenance. Otherwise incremental M&O costs are not supportable.
King Cove–Cold Bay Marine Link	Addressed via Congress	Federal appropriation will facilitate individual solution to serve this link.
King Cove–Cold Bay–False Pass Marine Link	Drop as a separate service concept	False Pass would receive a higher level of service under the dedicated <i>Tustumena</i> alternative
St. Paul–St. George Marine Link	Withdraw this concept	Very low benefits relative to costs. Marginal regional benefit given the remoteness of ports served.
Unalaska–Pribilofs–Dillingham Marine Link	Withdraw this concept	Even preliminary analyses indicate that this alternative would have a very low benefit-cost ratio. In addition, long distances between ports in rough waters would make for uncomfortable passenger voyages, limiting ridership
Unalaska–Akutan Marine Link	Develop a new service concept in light of current master planning efforts for a new airport in Akutan.	This alternative would provide an essential transportation link between these communities in the event that service by amphibious aircraft is no longer feasible, due to mechanical obsolescence and that a land-based airport cannot be built in Akutan.

Table 26
Revisions to the Initial List of Roadway Transportation Alternatives
for the Southwest Alaska Transportation Plan

Alternative	Action	Reason
Williamsport–Pile Bay Roadway Link	Retain this concept and revisit the service demand estimate for this alternative in light of freight movement needs.	Travel between Cook Inlet and Bristol Bay using the Williamsport–Pile Bay Road is safer and faster than sailing around the Alaska Peninsula.
Iliamna–Pedro Bay–Pile Bay Roadway Link	Revisit service demand estimate in light of freight movement needs.	The road would provide Pile Bay and Pedro Bay access to the airport at Iliamna and would allow for tourist access to Lake Clark National Park.
Newhalen–Iliamna–Nondalton Roadway Link	Treat this concept as a funding decision that has already been made and programmed.	Iliamna to Nondalton Road completion has already been programmed in the STIP.
Dillingham–Aleknagik Roadway Link	Treat this concept as a funding decision that has already been made and programmed.	Lacking bridge across the Wood River, access depends on an ice road crossing, or passenger and freight shuttle across the river by skiff. Already programmed in STIP.
South Naknek–Naknek–Roadway Link	Retain this concept making sure that the demand estimate accounts for the movement of schoolchildren; consider freight movement of fish	This alternative could support consolidation of airports, thereby reducing state-supported M&O costs.
Ivanof Bay–Perryville Roadway Link	Retain	Treat as element of Alaska Peninsula Roadway Alternative
Perryville–Chigniks Roadway Link	Retain	Treat as element of Alaska Peninsula Roadway Alternative
Chigniks Roadway Link	Revisit this alternative in light of possible airport consolidation and port improvements.	This roadway alternative could be integrated with a new regional airport master plan, raising the possibility of consolidating smaller airports in the immediate area
Chigniks–Port Heiden Roadway Link	Retain	Treat as an element of Alaska Peninsula Roadway Alternative.
Port Heiden–Pilot Point Roadway Link	Retain	Treat as element of Alaska Peninsula Roadway Alternative
Pilot Point–Ugashik Roadway Link	Retain	Treat as element of Alaska Peninsula Roadway Alternative
King Cove–Cold Bay Roadway Link	Withdraw this alternative.	A federal appropriation will facilitate individual resolution of this issue.
Egegik–King Salmon Roadway Link	Retain	Treat as element of Alaska Peninsula Roadway Alternative

Table 27
Revisions to the Initial List of Aviation Transportation Alternatives
for the Southwest Alaska Transportation Plan

Alternative	Action	Reason
Unalaska–Akutan Aviation Link	Prepare airport master plan for Akutan.	The imminent obsolescence of the aircraft now providing this aviation link may make it necessary to consider other ways of linking these communities.
Encourage development of a true regional aviation “sub-hub” in Southwest Alaska	Withdraw this concept.	Initial analysis revealed that is not economically feasible, insofar as sizable DOT&PF subsidies to private carriers would be required.
Development of improved terminal facilities at Southwest Alaska airports	Further develop this concept by compiling an inventory of current airport terminal facilities	The lack of consolidated terminals in hub Southwest Alaska is inefficient, and results in low levels of comfort for traveling residents and their visitors. Absence of terminals in small communities exposes travelers to the elements and provides no immediate opportunity for shelter or relief.

Members of the consultant team again met with DOT&PF staff on July 12, 1999, to discuss initial packaging of the list of surface transportation service and facility concepts. The packages represent regional subsystems that, if built, would substantially improve access and mobility within the region, as well as facilitating movement to and from the region from areas outside it. Projects were combined based on their ability to, improve both passenger and freight movement, improve intermodal connections, enhance economic efficiency, and improve levels of service. Listed in Table 28 are the seven surface transportation alternatives developed in the course of this planning effort, including each alternative's constituent elements.

Table 28 provides a summary of key evaluation data for the alternative packages examined.

Most of the elements identified in Table 28 have been carried forward into the Southwest Alaska Transportation Plan, with a few exceptions:

- The Homer – Seldovia – Williamsport ferry connection was dropped. Most travel between Homer and Williamsport, and then onto Pile Bay, is expected to be for freight. This freight movement can be accommodated by private barge operations, without the necessity of a subsidized State-operated ferry service. Ferry access to the south shore of Kachemak Bay would be provided as part of the Pacific Coast Marine Corridor service between the Kenai Peninsula and Kodiak.
- Kvichak River Marine Service was dropped. In the long term the road option connecting Iliamna Lake and Bristol Bay would be more effective. In the interim marine services on the lake, and possibly down the river, will be needed for freight transportation, but can be handled by private operators.
- Bristol Bay Marine Service was dropped. State-operated ferry service along this route could only be provided between May and October due to winter ice. Shallow water at Dillingham and several other ports would result in frequent schedule delays of up to six hours to accommodate tides. These scheduling difficulties would make the service unattractive for passenger travel and for freight movement the service would duplicate existing private barge operations.
- Intra-Kodiak Island Marine Service was dropped as a State-operated ferry service. As noted in Table 29, this service would require a relatively large deep-draft vessel and a lighter in order to operate in the varying water and shore conditions encountered around the island. This would result in a high operating cost for a service that would have low utilization.

One element has been added to the proposed projects in the Plan, compared to the listing in Table 29. This is a road connection between Dillingham (through Aleknagik) and the Cook Inlet to Bristol Bay road system. It was estimated that when implemented this road segment would be one of the most heavily traveled in the corridor and would result in sizable savings in freight transportation costs to Dillingham.

Inclusion of the Dillingham road connection also finalized the choice in road alignments between Iliamna Lake and the Naknek River to the road between Igiugig and Naknek following the Kvichak River (Overland Option B) rather than the more upland route between Igiugig and King Salmon (Overland Option A).

Table 28
Surface Transportation Alternative Packages for Evaluation
Southwest Alaska Transportation Plan

Package	Elements
1. Baseline	All regional transportation projects programmed for the Southwest Alaska Study Area, as reflected in STIP, Aviation Improvement Program, and Legislative Funding for FY 1999 for Ports and Harbors
2. Bristol Bay to Cook Inlet Corridor	<ol style="list-style-type: none"> 1. Homer to Williamsport Marine Service 2. Williamsport to Pile Bay Roadway Link <ul style="list-style-type: none"> Overland Option A. Via King Salmon <ul style="list-style-type: none"> Elements 1-2, plus <ul style="list-style-type: none"> • Pile Bay to Iliamna Roadway Link • Iliamna to Igiugig Roadway Link • Igiugig to King Salmon Roadway Link Overland Option B. Via Naknek <ul style="list-style-type: none"> Elements 1-3, plus <ul style="list-style-type: none"> • Pile Bay to Iliamna Roadway Link • Iliamna to Igiugig Roadway Link • Igiugig to Naknek Roadway Link • Igiugig to Levelock Roadway Link Marine Option A. via Hovercraft <ul style="list-style-type: none"> Elements 1-2, plus <ul style="list-style-type: none"> • Iliamna Lake–Kvichak River Service via Hovercraft Marine Option B. via Shallow-Draft Landing Craft <ul style="list-style-type: none"> Elements 1-2, plus <ul style="list-style-type: none"> • Iliamna Lake–Kvichak River Service via Shallow-Draft Landing Vessel
3. Pacific Coast Marine Corridor	Redeployment of Tustumena such that vessel service is dedicated to Southwest Alaska Study Area with terminal improvements/construction as needed at ports of call.
4. Alaska Peninsula Roadway System	<ul style="list-style-type: none"> • South Naknek to Naknek Roadway Link • King Salmon to Egegik Roadway Link • Egegik to Pilot Point Roadway Link • Pilot Point to Ugashik Roadway Link • Pilot Point to Port Heiden Roadway Link
5. Cross-Peninsula Roadway System	<ul style="list-style-type: none"> • Port Heiden to Chignik Roadway Link • Chignik Lake to Chignik Bay to Chignik Lagoon Roadway Link • Mitrofanina Airport
6. Bristol Bay Marine Service	<ul style="list-style-type: none"> • Marine system serving Togiak, Dillingham, Clarks Point, Naknek, and Egegik
7. Intra Kodiak Island Marine Service	<ul style="list-style-type: none"> • Marine service serving the outports of Kodiak Island

Table 29
Southwest Alaska Transportation Plan
Surface Transportation Packages for Evaluation – Summary Sheet

PACKAGE	ELEMENTS	Total Capital Cost	Capital Recovery Factor ¹	Annual M&O Cost	Estimated 2020 Annual Person Miles Traveled	COMMENTS
1. Baseline	All regional transportation projects programmed for Southwest Alaska, as reflected in STIP, Aviation Improvement Program, and Legislative Funding for FY 1999 for Ports and Harbors.					Key baseline projects include planned completion of the Dillingham–Aleknagik Road (Wood River Bridge), completion of the Iliamna–Nondalton Road, the Winter Trail Marking project, and major port improvements at Kodiak.
2. Cook Inlet to Bristol Bay Corridor	Core Elements					Significant navigational improvements would be required at Williamsport, unless an alternate ferry port was found.
	• Homer-Seldovia–Williamsport Marine Service	\$6,570,000	\$620,400	\$2,031,600	370,000	
	• Williamsport to Pile Bay Roadway Link ²	\$34,890,000	\$3,292,900	\$209,300	30,000	
	SUBTOTAL	\$41,460,000	\$3,913,300	\$2,240,900	400,000	
	Overland Option A, via King Salmon					Although all options in this corridor rely on a ferry link from Homer to Williamsport and improvement of the Williamsport-Pile Bay road, two of the options rely wholly on overland routing, while the other two rely on a combination of overland and marine routing. The first wholly overland option is routed through King Salmon.
	Core Elements plus	\$41,460,000	\$3,913,300	\$2,240,900	400,000	
	• Pile Bay to Iliamna Roadway Link	\$51,870,000	\$4,896,200	\$513,000	620,000	
	• Iliamna to Igiugig Roadway Link	\$87,880,000	\$8,295,300	\$756,000	6,480,000	
	• Igiugig to King Salmon Roadway Link	\$76,440,000	\$7,215,400	\$756,000	7,140,000	
	TOTAL	\$257,650,000	\$24,320,200	\$4,265,900	14,640,000	
	Overland Option B, via Naknek					The second wholly overland option is routed through Naknek, which has the advantage of allowing a tie-in to Levelock and potential connections to communities further west, such as Dillingham.
	Core Elements plus	\$41,460,000	\$3,913,300	\$2,240,900	400,000	
	• Pile Bay to Iliamna Roadway Link	\$51,870,000	\$4,896,200	\$513,000	670,000	
	• Iliamna to Igiugig Roadway Link	\$87,880,000	\$8,295,300	\$756,000	6,940,000	
	• Igiugig to Naknek Roadway Link	\$127,675,000	\$12,051,600	\$1,012,500	10,870,000	
	• Igiugig to Levelock Roadway Link	\$43,635,000	\$4,118,800	\$256,500	580,000	
	TOTAL	\$282,050,000	\$33,275,200	\$4,778,900	19,460,000	

PACKAGE	ELEMENTS	Total Capital Cost	Capital Recovery Factor ¹	Annual M&O Cost	Estimated 2020 Annual Person Miles Traveled	COMMENTS
	Marine Option A, via Hovercraft					Two options combining roadway and marine links were explored. The first involves use of a hovercraft to serve the communities in the area of Iliamna Lake and the Kvichak River west to Bristol Bay. The hovercraft's major advantage is the fact that it would be operable basically year-round, with about 20 days set aside for maintenance. Potential issues with the hovercraft option include noise impacts.
	Core Elements plus	\$21,430,000	\$2,022,800	\$2,240,900	440,000	
	• Iliamna Lake-Kvichak River Service via Hovercraft	\$5,500,000	\$519,200	\$1,728,600	1,173,000	
	TOTAL	\$26,930,000	\$2,542,000	\$3,969,500	1,613,000	
	Marine Option B, via Shallow-Draft Landing Craft					The second option explored to provide a marine link from Pile Bay west to Bristol Bay was use of a high-speed, shallow-draft landing vessel. Given the distances involved, dayboat service (each day's trips not exceeding 12 hours) would be feasible. Substantial crewing savings accrue under the dayboat concept. (However, this is not "dayboat" service in the sense that vessel and crew would not return to the same homeport every night. Some passengers would have to find lodging on shore, as the vessel would have overnight space for crew only). A high-speed vessel (25-knot) is desirable for this option in order to be able to navigate against the river current. This option's chief disadvantage is that winter ice would constrain operations to the period between May 1–October 31.
	Core Elements plus	\$21,430,000	\$2,022,800	\$2,240,900	440,000	
	• Iliamna Lake-Kvichak River Service via Shallow-Draft Landing Vessel	\$776,000	\$73,200	\$324,500	610,000	
	TOTAL	\$22,206,000	\$2,096,000	\$2,565,400	1,050,000	

PACKAGE	ELEMENTS	Total Capital Cost	Capital Recovery Factor ¹	Annual M&O Cost	Estimated 2020 Annual Person Miles Traveled	COMMENTS
3. Pacific Coast Marine Corridor	Option A, 22 Trips out Aleutian Chain per Year	NA	NA	\$7,178,800	6,530,000	Dedicating the <i>Tustumena</i> to Southwest Alaska differs from the other packages insofar as it simply involves reallocation of existing service as opposed to the development of new facilities or services.
	<ul style="list-style-type: none"> Redeployment of <i>Tustumena</i> such that vessel service is dedicated to Southwest Alaska 					Currently, the communities on the south side of the Alaska Peninsula, from Chignik southwest to Unalaska, receive 7 round trips of AMHS service per year (7 trips each east- and westbound). Option A would increase the number of trips out the Aleutian chain to 22 round trips per year within a 44-week service period (typical of both AMHS mainline vessels and historic <i>Tustumena</i> deployment). The number of trips between the Kenai Peninsula and Kodiak under this option would increase from the 1997 level of 72 to 132.
	TOTAL			\$7,178,800	6,530,000	For Option A, M&O costs are estimated at \$7,178,800. Based on the planning-level demand estimated prepared for this analysis, total revenues (passenger and vehicle tariffs, stateroom tariffs, and food sales) are estimated to generate on the order of \$4,637,000 under Option A. This would leave a net subsidy required on the order of \$3,082,000. This is not far from the current ratio of M&O costs relative to revenues for this vessel. While current M&O costs for the <i>Tustumena</i> are in the neighborhood of \$7,709,000, current revenues are in the neighborhood of \$3,276,000, leaving a current subsidy of \$4,433,000.

PACKAGE	ELEMENTS	Total Capital Cost	Capital Recovery Factor ¹	Annual M&O Cost	Estimated 2020 Annual Person Miles Traveled	COMMENTS
	Option B, 11 Trips out Aleutian Chain per Year					Option B would also increase the number of trips out the Aleutian chain, but only half as much as Option A, – from 7 to 11 trips within a 44-week service year. The number of trips from Homer to Kodiak would increase from 72 to 176. At \$7,717,000, estimated M&O costs for Option B are close to those for Option A. Total revenues (passenger and vehicle fares, stateroom sales, and food sales) are estimated to generate a total of \$4,620,000, leaving a net subsidy of \$3,097,000 required.
	• Redeployment of <i>Tustumena</i> such that vessel service is dedicated to Southwest Alaska	NA	NA	\$7,717,000		
	TOTAL			\$7,717,000		
4. Alaska Peninsula Roadway System	• Naknek to South Naknek Roadway Link	\$59,810,000	\$5,645,200	\$61,300	950,000	
	• South Naknek to Egegik Roadway Link	\$129,200,000	\$12,196,000	\$877,500	4,930,000	
	• Egegik to Pilot Point Roadway Link	\$74,802,000	\$7,060,800	\$739,800	4,170,000	
	• Pilot Point to Ugashik Roadway Link	\$53,067,000	\$5,009,200	\$159,300	840,000	
	• Ugashik to Port Heiden Roadway Link	\$119,847,000	\$11,312,700	\$1,185,300	6,310,000	
	TOTAL	\$436,726,000	\$41,223,900	\$3,023,200	17,200,000	
5. Cross-Peninsula Roadway System	• Port Heiden to Chignik Roadway Link	\$84,630,000	\$7,988,500	\$837,000	4,400,000	
	• Chignik Lake – Chignik Lagoon – Chignik Roadway Link	\$30,849,000	\$2,911,900	\$305,100	1,840,000	
	• Chigniks to Perryville Roadway Link	\$56,166,000	\$5,301,700	\$541,300	1,410,000	
	• Perryville to Ivanof Bay Roadway Link	\$13,650,000	\$1,288,500	\$135,000	130,000	
	TOTAL	\$185,295,000	\$17,490,600	\$1,818,400	7,780,000	

PACKAGE	ELEMENTS	Total Capital Cost	Capital Recovery Factor ¹	Annual M&O Cost	Estimated 2020 Annual Person Miles Traveled	COMMENTS
6. Bristol Bay Marine Service	• Marine system serving Togiak, Dillingham, Clarks Point, Naknek, and Egegik	\$3,500,000	\$330,400	\$890,000	500,000	Service along this route could only be provided between May and October due to winter ice. Shallow water at Dillingham and several other ports would result in frequent schedule delays of up to six hours to accommodate tides. Long distances between ports would require long running times, with two legs requiring close to 11 hours apiece.
	TOTAL	\$3,500,000	\$330,400	\$890,000	500,000	
7. Intra Kodiak Island Marine Service	• New marine service to the outports of Kodiak Island	\$3,250,000	\$306,800	\$2,151,300	750,000	Service would be complicated by inadequate port facilities at several of the communities to be served. While the proposed route's exposed waters and rough seas indicate the need for a relatively large, deep-draft vessel, the ports' narrow, rocky, and shallow-water approaches mean that passengers would have to be lightered to and from the primary vessel, which renders this service (1) more costly than traditional service since lighterage requires additional crew; (2) slower and less efficient than traditional service; (3) less reliable than traditional service insofar as lighterage would have to be suspended in adverse weather conditions; and, (4) much less efficient for cargo-carrying purposes, given the need to lighter cargo.
	TOTAL	\$3,250,000	\$306,800	\$2,151,300	750,000	

¹ An annual capital recovery factor was calculated for each project based upon the total capital cost and the assumed 20-year design life of each project. Using a 7% discount rate, the capital recovery factor is the annual payment over 20 years that is equivalent in present value to the total capital cost for each project. Calculation of this factor facilitates the useful comparison of capital costs to O&M costs on an annual basis, and also would allow for comparison of projects with differing years of design life.

² For each roadway link, capital and M&O costs were estimated for both paved and unpaved options. This table reports the figures for the paved option only.

Potential Financial Resources

Federal Sources

Surface Transportation

The transportation system of Southwest Alaska area includes surface transport (highway and marine modes) and aviation. Federal monies from a multitude of separate programs and agencies are the single most important sources of funding for capital investments. Statewide, by far the largest portion of funding is provided for surface transportation, which was recently reauthorized as the Transportation Equity Act for the 21st Century, which is also known as TEA-21. TEA-21 contains funding authorization for the six-year period from 1998-2003.

TEA-21 encompasses programs administered by the Federal Highway Administration (FHWA), Federal Railroad Administration and the Federal Transit Administration (FTA). In 1996, it accounted for about 75 percent of Alaska's total Federal funding.

Aviation

Federal aviation funding is disbursed under the Federal Aviation Administration's Airport Improvement Program (AIP). AIP funding in FFY 98 through 99 varied between \$79 million and \$89 million. In FFY 01 the AIP experienced a significant increase in AIP funding to \$142.3 million. Aviation funding has accounted for about 21% of all Federal funding to Alaska in the past decade. Two other Federal programs, the Essential Air Service Program (EAS) administered by the FAA, and the Bypass mail program, administered by the U.S. Postal Service constitute two other important (although indirect) sources of support for air service in Alaska.

Ports and Harbors

Funding for ports and harbors is volatile. This is because there is so little in the way of Federal resources devoted to this mode. While the U.S. Army Corps of Engineers (COE) funds some navigation projects, the overall levels are quite low – and nowhere near the levels provided for surface transportation or aviation. In all, funding for ports and harbors through the COE has comprised about 4% of Alaska's total Federal transportation funding in the past decade. Thus additional funding sources at the Federal and state level will be needed to implement the port and harbor improvements identified in the plan.

The State's Responsibility for Maintenance and Operations

While the Federal government is the major source transportation funding in Alaska, DOT&PF prioritizes, arranges, and administers the vast majority of capital projects. In addition, the State pays for maintenance and operations for State roadways, most Alaska airports, and the marine highway system. The resources necessary to accomplish these objectives are considerable. Despite the scale and complexity of DOT&PF's responsibilities, it is important to note that DOT&PF's autonomy is more limited than that of most State departments of transportation

because Alaska dedicates no revenue source to transportation purposes.¹⁶ In fact, any such dedication is constitutionally prohibited. As such, Alaska's Legislature retains an unusual degree of control over the State's transportation programs and priorities.

Whereas most states have established highway trust funds, supported by State gas taxes, motor vehicle excise taxes, licensing fees, and other transportation-related user fees, transportation projects and programs must compete each year for General Fund appropriations with other pressing social and infrastructure needs, including education, health, and utilities. State revenue shortfalls, resistance to increased taxes, and constant legislative scrutiny mean that the pressure is on DOT&PF as never before to find ways to reduce its operating costs, secure the State match for Federal funds, and meet growing demand for transportation facilities and services.

¹⁶ Currently, the State's only source of dedicated revenue is the International Airport Revenue Fund, a sub-fund of the General Fund, which supports operation and maintenance of Alaska's two International Airports. There are other sub-funds that are typically used to support DOT&PF operating programs, including the AMHS Fund and Highway Equipment Working Capital Fund. However, these are not *dedicated* funding sources. Revenues from various fees, charges, and taxes go into the General Fund and are typically appropriated back to DOT&PF as program receipts with which to operate specific programs.

Appendix A: Selection of Design Aircraft

Industry and Regional Air Travel Trends

Both national industry and regional trends suggest an evolution of larger aircraft is possible to communities in Southwest Alaska by the year 2020. Often as aircraft become outdated in terms of size and technology in the lower 48 states, they become available for service in relatively remote areas such as Southwest Alaska. In general, the regional airline industry has seen tremendous growth over the last decade in the United States primarily driven by a strong national economy and low fuel costs. The industry has also seen demand increase for seamless connections between major and regional airlines. As a result of this demand, there is less distinction between regional and major operators, which has resulted in the use of larger aircraft for regional services primarily in the lower 48 states. Further, the Regional Airline Association (RAA) expects aircraft with greater than 40 seats will comprise the bulk of aircraft deliveries in the United States for the next 15 years. RAA predicts that the demand for both the 15–19 seat and 20–39 seat aircraft are expected to decline as operators find larger aircraft more cost efficient. FAA regulations such as Part 121 have increased the operating costs for planes under 20 seats.¹⁷ In fact, RAA indicates regional airlines in an effort to reduce cost and complexity of operations are actually attempting to get rid of aircraft in the 15-19 passenger aircraft (which is a larger-sized aircraft in Southwest Alaska). These airlines will likely try to replace these aircraft with larger ones given the increasing demand and complex regulations, resulting in opportunities for movement to more remote or rural areas.

Specific to Alaska, the *Alaska Aviation System Plan Update* (March 1996) suggests that an evolution of larger capacity aircraft to Alaska is already taking place. According to the System Plan Update, Alaska has seen an increase in aircraft size over the last 15 years. The report indicates the capacities of aircraft have increased from 3-passenger aircraft (e.g., Cessna 180s and 185s) to 5-to-7 passenger aircraft (e.g., Cessna 206s and 207s), and that these aircraft are being replaced by 9-passenger aircraft such as Piper PA-31s. As the Piper PA-31s are no longer manufactured, the System Plan Update predicts even larger aircraft will become available in Alaska.

Design Aircraft

Based on the industry and regional air travel trends in Southwest Alaska, it is realistic to assume that larger-sized aircraft, particularly fewer than 40 passengers, will be available in Southwest Alaska in the future. To determine specific design aircraft, the analysis focused on existing aircraft being flown in Alaska as identified from interviews with air carriers providing scheduled passenger and cargo service. In addition, the aircraft listed in the Yukon-Kuskokwim Delta Transportation Plan were also considered for potential use in Southwest Alaska. A number of characteristics were examined to identify a design aircraft for the following categories: 5 to 7, 9, 19 and 30 passenger seats as well aircraft that may be provide cargo-only service. These features are listed below:

- Passenger capacity (seats);
- Cargo capacity (pounds);

¹⁷ The Federal Aviation Regulation (FAR) Part 121 regulates the operations of the air carriers and operators that provide air service for hire or compensation. For instance, FAR Part 121 regulates the amount of fuel that must be in reserve to make a trip.

- Required runway length and width;
- Airport Reference Code (ARC) designation to determine the required safety area length and width¹⁸;
- Number of engines;
- Market presence of aircraft in the entire nation as well as Alaska specifically.

The design aircraft chosen for Southwest Alaska are listed in Table 30 with the associated runway lengths. As noted, the required runway length is a function of a number of variables including temperature and elevation, so the listed runway is a typical length required for each aircraft.

Table 30
Design Aircraft for Southwest Alaska

Aircraft	Passenger Capacity	Cargo Capacity (pounds)¹⁹	Runway Length (feet)	Runway Width	# of Engines	ARC Designation
Piper PA-32	6	1,000	1,760	60	1	A-I
Cessna 208	9	3,500	2,500	75	1	A-II
Piper PA-31	9 (Over-water Routes)	1,700	4,000	60	2	B-I
Beech 1900	19	6,000	4,000	75	2	B-II
SAAB 340	30	8,555	4,400	75	2	B-II
Boeing 737-200	65	31,445	5,700	100	2	C-III
Boeing 727-100	NA	30,500	6,000	100	3	C-III

The basic aim in narrowing the list to one aircraft for each size category was to minimize the runway and safety area dimensions (translating to fewer capital and maintenance costs for DOT&PF) while maximizing the passenger and cargo capacity. For instance, the Fairchild Metro is a 19-passenger aircraft that currently provides service in Southwest Alaska, but the Beech 1900 was chosen over this aircraft. The Beech 1900 is able to carry more cargo and requires a shorter runway than the Fairchild Metro. Our choice does not determine (or invalidate) the design aircraft for an individual airport master plan (AMP), which must plan for the near-term need based upon airframes in use at the initiation of the AMP. We are reasonably assuming the future air carrier fleet and planning strategically on that basis to anticipate where and when future airport expansions, consolidations, or closures may be warranted.

The anticipated availability of aircraft in Southwest Alaska was also a major factor in choosing the design aircraft. The Ayres Loadmaster is able to carry a significant amount of cargo (9,000 pounds), and only requires a 3,300' runway. However, it is not expected that this aircraft

¹⁸ The FAA Airport Reference Code (ARC) is a classification system used to relate the airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. This two-letter code uses the aircraft approach speed designated by a letter and the aircraft wingspan designated by a number.

¹⁹ The actual cargo capacity of an aircraft can vary a great deal depending on factors such as the length of the trip.

will evolve as an airliner in Southwest Alaska due its relatively new presence in the United States aircraft market.



Beech 1900D, courtesy of Raytheon Corporation

Of special note to both cargo and passenger aircraft in Southwest Alaska is the Cessna 208. In terms of passenger capacity, this aircraft can carry 9 passengers and is able to carry a significant amount of cargo for its size (3,500 pounds with just cargo), but it only requires a 2,500' runway. According to the FAA Aircraft Registry there are 648 of these aircraft in regional service nationwide with 44 in service in Alaska. Federal Express has purchased over 300 specially designed Caravans, but the company recently placed an order for 50 Ayres Loadmasters with the option to purchase 200 more. Given this development, there is potential that more Caravans may move into regional air service. The Federal Express version is obviously designed specifically for freight, so the aircraft has the potential to be used easily for cargo.

As far as cargo service in the Southwest Alaska, many of the airlines offer both cargo and passenger service. Conversations with the airlines revealed that some aircraft could be rearranged depending on the passenger and cargo demand. For instance, if only 3 passengers show up for a flight using a 7-passenger aircraft, the additional seats may be taken out and the airline will use the additional capacity for cargo. Typically, the airlines will fill an aircraft with passengers first, and they will then use any remaining capacity to fulfill cargo demand.

Southwest Alaska also has several airlines that provide cargo-only service. Currently, the cargo air carriers in Southwest Alaska are for the most part using smaller aircraft (e.g., Cessna 207, Beech 1900). Service to regional communities and communities with larger runways is provided with larger aircraft (e.g., Northern Air Cargo's Boeing 727-100). The Boeing 727-100 can carry 30,500 pounds of cargo and has an ARC designation of C-III.

Some general remarks on how the design aircraft compared with other similar aircraft is summarized in Table 31.

Table 31
Justification for Design Aircraft in Southwest Alaska

Aircraft	General Comparison to Other Aircraft	Potential Market Presence
Piper PA-32	<ul style="list-style-type: none"> Runway length and safety area requirements are similar to others in this size category. 	<ul style="list-style-type: none"> A number are already in service in Alaska. PenAir, one of the largest airlines servicing Southwest Alaska has indicated they will be using this aircraft for this size category.
Cessna 208	<ul style="list-style-type: none"> Safety area requirements are similar to others in this size category. Aircraft is able to carry large amount of cargo with one of the shorter runways in this size category. 	<ul style="list-style-type: none"> There is potential for a significant number of these aircraft given recent actions by FedEx (see more details below). PenAir, one of the largest airlines servicing Southwest Alaska has indicated they will be using this aircraft for this size category.
Piper PA-31	<ul style="list-style-type: none"> Twin engines make for a safer aircraft for over-water routes. 	<ul style="list-style-type: none"> A number are already in service in Alaska.
Beech 1900	<ul style="list-style-type: none"> Useful cargo load is greater than other options in this size category. Required runway is one of the shorter lengths among the other alternatives. 	<ul style="list-style-type: none"> Significant potential for increased use in Alaska given large amount in regional service. In addition, this aircraft has potential for use as cargo-only aircraft.
SAAB 340	<ul style="list-style-type: none"> Runway dimensions are slightly greater for this aircraft than some of the other alternatives in this size category. 	<ul style="list-style-type: none"> There is significant potential for increased use in Alaska given the large amount in regional service, particularly in comparison to other alternatives in this size category.

Bypass mail legislation

This section was added after the draft plan public review in order to account for changes in bypass mail brought about by the enacting of the Rural Service Improvement Act of 2002 (PL 107-206 Section 3002 of August 2, 2002). This review effort additionally served to update the plan's aviation analysis by incorporating the two most recent years of FAA enplanement data into its findings. The analysis found the draft plan's recommendations for aviation improvements to be valid, without exception. A tabular summary of the modeling results is presented in Table 32.

Recommendations are in terms of "121" (Federal Air regulations part 121) and "135" (Federal Air regulations part 135) routes. Part 121 governs aircraft with ten seats or more, two pilots, and a higher standard of instrumentation, weather reporting, and maintenance. Part 135 governs aircraft with fewer than 10 seats, for which the minimum state standard 3300-foot runway length is designed (and sufficient).

Table 32 Summary of Aviation Analysis 2000 to 2025

Rte	Villages	Present Service	Present Assessment	2025 Estimate	Recommendations
1	King Salmon Chignik (3 in 1) Perryville Port Heiden	Wkdy - 4 Sat - 3 Sun. - 3	With the new USPS regulations all mail for the three Chigniks, Perryville and Port Heiden would be flown from King Salmon along with the passengers. Port Heiden would no longer be a USPS hub. With Saturday delivery of mail (meets USPS requirements), the present service would handle all but about 1% of the mail.	Expanding the service, still with Cessna 208's by one more flight (7 days) delivers essentially all the passengers and 70% mail assigned to the service. The three runs indicate that there may be two to four extra flights needed in the course of a year.	Clearly a "135" Route - should remain that way under the new postal law. Chignik Area new airport - 3300 x 75 Perryville - 2467 x 50 to 3300 x 75 Port Heiden - 5240 x 100 CW - 4000 x 100 OK
2	King Salmon Levelock Igiugig	Wkdy - 2 Sat - 2 Sun. - 1	The present service involves some air taxi. As stated would handle all of the mail needs. 2 extra flights were required to handle 5 passengers during the year.	Expanding the service by one more Cessna 208 flight for 6 days week delivers all the passengers except 8 requiring four extra Sunday flights plus 70% of mail.	Clearly a "135" Route - should remain that way under the new postal law. Levelock - 3280 x 60 OK Igiugig - 3000 x 75 OK
3	King Salmon Egegik Pilot Point	Wkdy - 3 Sat - 3 Sun. - 1	The present service involves some air taxi. As stated would handle all of the mail needs. In the simulation 1 extra flight was required to handle 1 passenger during the year. This seems like more service than necessary.	Increasing the service to 4 flights every weekday and two on Sunday handled all the passengers and all but about 1% of the mail. The three simulation runs indicate that there may be two to four extra flights needed during the year.	Clearly a "135" Route - should remain that way under the new postal law. Egegik - 5600 x 100 OK Pilot Point - 3280 x 75 OK Ugashik Bay - 5280 x 100 OK (considered part of Pilot Point)
4	Dillingham Manokotak Togiak Twin Hills	Wkdy - 5 Sat - 3 Sun. - 3	This service will handle all the passengers and all but 4% of the mail requiring 15 added 208 flights per year. Changing the service to add 1900s 2 per weekday and 1 sat and sun improves the service but requires immediate upgrade of Twin Hills and Manokotak to 4000 feet.	The 2025 mail and passenger traffic forces the service into 4 Beech 1900s and 2 Dash-8s on the weekdays. An alternate service could be two TOG direct to DLG 1900's and the remainder a 208 route including all three villages.	If Togiak can have direct service twice a day then other two airports can remain as "135" airports. Togiak - 4220 x 125 OK Manokotak - 2740 x 75 to 3300 x 75 Twin Hills --- 3000 x 60 OK
5	Dillingham Ekwok Koliganek New Stuyahok	Wkdy - 5 Sat - 4 Sun. - 4	The present service will handle all of the passengers and all the mail.	Expanding the service, by one more 208 flight (7 days) delivers essentially all but 4 of the passengers and 1.5% of the 70% mail assigned to the service.	Remain a heavily traveled "135" Route. Ekwok - 2720 x 75 to 3300 x 75 Koliganek - 3000 x 75 OK N Stuyahok - 1800 x 50 to 3300 x 75
6	Iliamna to Kokhanok to Pedro Bay	Wkdy - 3 Sat - 2 Sun. - 2	Service provided by Iliamna Air Taxi, scheduled service only listed for 3 days/week. From level of enplanements regular service was simulated as listed. Which was enough in 2000.	Expanding service by adding one Saturday flight handles all but about 4% of the mail and 5 passengers.	Clearly a "135" Route and should remain that way under new postal law. Kokhanok - 3000 x 60 OK Pedro Bay - 2900 x 60 OK
7	Iliamna to Nondalton to Port Alsworth	Wkdy - 3 Sat - 3 Sun. - 2	Service provided by Iliamna Air Taxi, scheduled service only listed for 3 days/week. From level of enplanements regular service was simulated as listed. Which was enough in 2000.	Expanding service by adding one flight each day handles all but 5% of the mail. But the simulation showed a passenger overload of about 300/yr. This required an added 60 207 flights and 15 208's.	One airport is private and the other should be brought up to state standards. Nondalton - 2800 x 75 to 3300 x 75 Port Alsworth (private) - 3000 x 100 OK
8	Dillingham Clark's Point Ekuak	Wkdy - 5 Sat - 4 Sun. - 4	So close to Dillingham with seasonal swings that service was not simulated.		Clarks Pt - 2600 x 70 Ekuak Private Fishery - 1200 x 40 (Road to Clarks Point or Upgrade)
9	South Naknek	N/A	Present service OK.	Connected by Bridge and Road to King Salmon	South Naknek - 3110 x 60 OK

A "135" route refers to one served by aircraft with fewer than 10 seats, for which the minimum state standard 3300-foot runway length is designed (and sufficient). See explanation on page 69.

Appendix B: Freight Cost Savings

Building and rehabilitating selected roadway linkages in the Southwest Alaska study area has the potential to save millions of dollars a year in freight movement costs. Because of its remoteness, skeletal surface transportation infrastructure, and challenging weather and topography, Southwest Alaskans experience some of the nation's highest freight movement costs. These costs impose significant constraints on residents' quality of life and on their communities' and region's ability to develop and support a stable, diversified economic base.

The roadway links proposed as part of this transportation plan are expected to have significant impacts on the costs and logistics of regional freight movement. Being able to truck goods from study area ports including Chignik and Williamsport, as opposed to having to barge them all the way around the Alaska Peninsula or fly them in from Anchorage, would be far less expensive than under current routing and mode splits.

It is possible to determine just how much less expensive by forecasting future volumes of cargo consumption, estimating current rates under the existing infrastructure and by estimating future rates under the proposed roadway linkages, which are much lower.

The “non-roadway” marine and aviation improvements are not included in the freight movement analysis because they are not expected to have significant freight movement impacts. Ferry service is not currently, and is not expected to be a significant player in regional freight movement. By large margins, commercial marine shipping and barge companies are able to move goods into and through the region more quickly and less expensively than the AMHS. Mission, service frequency, speed, and number of transfers required are among the reasons for commercial shippers' cost advantages.

Likewise, the aviation improvements proposed as part of this regional transportation plan are not expected to have significant freight movement impacts – at least not at the level of analysis supportable by available data. Several of the aviation improvements proposed would lengthen selected study area runways. Increasing runway length allows airports to accommodate larger planes that can carry larger amounts of cargo, presumably at a lower unit cost. Any freight movement cost savings achieved through lengthening runways would be marginal and discernible only at the microeconomic level.

In contrast, the projects that involve roadway links are anticipated to spark large-scale modal shifts. Accordingly, cost differences at a much higher level of magnitude are also anticipated. Moreover, the level of precision that would be required to assess the economic impacts longer runways far exceeds the precision of available study area data.

At the heart of the analysis are estimates of current and forecast consumption of goods, including petroleum products. Existing freight movement costs and modal splits (e.g., the percentage of goods by volume carried by commercial marine and air shipment, respectively) are also estimated. These estimates are inputs into the calculation of total freight movement costs into the future under existing conditions; that is, given the existing freight movement infrastructure.

In order to compare these costs with the costs that would be incurred if given links were developed, separate rate calculations and mode splits are modeled under specified changes in the freight movement infrastructure. This changed infrastructure entails roadway linkages among a number of study area communities and between these communities and major marine ports. These rate and mode split estimates are then applied to the forecast volumes. The end result is a comparison of total freight movement costs under existing conditions versus under total freight movement costs under the specified surface transportation improvements.

The freight movement impact of any individual link is very much a function of how many other contiguous links are implemented. The number of possible combinations of individual links that might be implemented at any point in time is very high. For this reason, it would not have been feasible to assess the economic impact of every possible combination of links.

Instead, two separate scenarios were explored. Under **Scenario 1**, it is assumed that all proposed roadway links and navigation and harbor improvements are implemented. Under **Scenario 2**, it is assumed that only select elements of the Cook Inlet to Bristol Bay Corridor are implemented: namely, the navigational improvements at Williamsport and rehabilitation of the existing road and bridges between Williamsport and Pile Bay.

To assess the cost savings achievable from making the proposed transportation improvements, one simply multiplies the forecast volume of goods for the 2020 design year by rates under existing conditions and by rates with the proposed improvements. Put simply, the difference between these totals represents the freight movement savings achievable by implementing the proposed improvements. Results for Scenario 1 and Scenario 2 are provided separately.

Scenario 1. Final Freight Movement Cost Savings Estimates

Petroleum Movement Cost Savings

Substantial savings in petroleum movement costs can be anticipated if Scenario 1 is implemented. Petroleum movement rates are much decreased from communities that are now particularly inaccessible, such as Chignik Lake, where the shipment rate is projected to fall from \$0.60 to \$0.13 per gallon. Savings are even greater in Iliamna Lake communities, such as Iliamna, where petroleum shipment costs are anticipated to fall from \$0.80 to \$0.15 per gallon, a greater than a five-fold reduction. The road would have the greatest freight movement cost savings for those communities that are now hardest to reach – i.e., those surrounding Iliamna Lake.

Modest savings, in contrast, are anticipated in Naknek and King Salmon. Naknek is already served directly by relatively frequent barge service, as part of the larger Bristol Bay market, which also includes communities to the north, such as Dillingham. According to this analysis, the cost of petroleum movement to Naknek is projected to fall only a few cents – from \$0.30 to \$0.27 per gallon.

In all, 2020 cost savings due to petroleum movement alone are estimated at \$805,300 per year. Actual savings could be higher or lower, based on factors including deviations from the population base forecast; the extent to which the improvements encourage competition, which could further lower rates; and the extent to which the improvements foster other forms of economic development, such as tourism.

Volume increases spurred by such development could further reduce rates. But rates could be higher than forecast if

- significant operating costs faced by shippers have not been taken into consideration;
- if operating conditions on the proposed roadway prove more difficult to manage and maintain than anticipated; and
- if other economic mainstays in the study area falter, reducing both population levels and the demand for goods shipment.

Beyond the shipping cost savings suggested by this analysis, other economic and social benefits would accrue through implementation of the road, in terms of petroleum shipment alone. According to Lake and

Peninsula School District administrator, Dennis Niedermeyer, the higher cost of shipping petroleum in winter months (when it must be flown into inland communities, and to Bristol Bay communities) effectively forces Southwest Alaska residents to “stock up” during the periods when petroleum can be barged in. However, communities are hard pressed to find storage capacity for all of the fuel needs, which can vary significantly by the harshness of a given winter. In his view, overtaxing fuel storage facilities creates problems in and of itself, such as fuel leaks and spills, whose cleanup is costly – both environmentally and financially. Another of the road’s advantages would be reduced dependence on air shipment of petroleum products, which has safety drawbacks.

Petroleum Movement Cost Savings Summary

Total petroleum freight movement cost savings from building the Alaska Peninsula Roadway is estimated at \$805,300 annually (Table 33).

“Other” Cargo Movement Cost Savings

Cargo movement savings achievable by implementing Scenario 1 are anticipated in two major areas. The first, and the primary focus of this assessment, is the savings that can be achieved in moving goods and commodities to communities in Southwest Alaska. The second has to do with savings achievable by providing the region’s gillnet fishers a more viable route between their fishing grounds in Bristol Bay, and Cook Inlet, where many store their vessels during the off-season, and where many have repair and maintenance done. These impacts are explored separately.

Commodities Movement impacts

Listed in Table 34 is a summary of estimated cost savings in commodities movements based on the rate calculations, and port call assumptions earlier discussed. This analysis suggests that around \$12,495,900 per year could be saved in freight costs in terms of moving “Other” cargo alone, if Scenario 1 is implemented. Note that cargo shipment mode shift under the proposed infrastructure improvements had to be taken into account in this analysis. These mode shift assumptions are documented in Table 34. These mode shift assumptions under both existing conditions and under the assumption that Scenario 1 is built are based on primary source data and area shippers’ input.

A few explanations regarding the Iliamna Lake communities are needed to interpret Table 34. First, a weighted average was used in calculating the marine shipment rate under existing conditions for Iliamna Lake communities. This weighted average takes into account the percentage shipped, and rates paid, for marine freight via Naknek and Williamsport, respectively. In terms of projected rates, this analysis assumes that if the Trans-Peninsula Roadway is built, that most waterborne cargo will be shipped to Iliamna Lake communities via Williamsport.

Table 33
Estimated Petroleum Movement Cost Savings
Scenario 1

	2020 Forecast Consumption (gal)	Current Rate (\$/gal)	Estimated Rate with Road* (\$/gal)	Assumes Product Shipped through	2020 Cost Estimate Using Existing Rates (\$ paid)	2020 Cost Estimate Assuming Scenario 1 is Implemented (\$ paid)	2020 Savings Achievable (\$ saved)
Chignik	65,570	\$0.250	\$0.120	Chignik	\$16,400	\$7,900	\$8,500
Chignik Lagoon	122,950	\$0.500	\$0.130	Chignik	\$61,500	\$16,000	\$45,500
Chignik Lake	163,930	\$0.600	\$0.130	Chignik	\$98,400	\$21,300	\$77,100
Dillingham/Aleknagik	3,024,590	\$0.300	\$0.300	Williamsport	\$907,400	\$907,400	\$0
Egegik	139,340	\$0.500	\$0.300	Chignik	\$69,700	\$41,800	\$27,900
Igiugig	73,770	\$0.800	\$0.200	Williamsport	\$59,000	\$14,800	\$44,200
Iliamna/Newhalen/ Nondalton	573,770	\$0.800	\$0.150	Williamsport	\$459,000	\$86,100	\$372,900
Ivanof Bay	16,390	\$0.270	\$0.170	Chignik	\$4,400	\$2,800	\$1,600
King Salmon/Naknek	1,139,340	\$0.300	\$0.270	Williamsport	\$341,800	\$307,600	\$34,200
Levelock	139,340	\$0.800	\$0.230	Williamsport	\$111,500	\$32,000	\$79,500
Pedro Bay	49,180	\$0.800	\$0.120	Williamsport	\$39,300	\$5,900	\$33,400
Perryville	114,750	\$0.300	\$0.170	Chignik	\$34,400	\$19,500	\$14,900
Pilot Point	131,150	\$0.520	\$0.250	Chignik	\$68,200	\$32,800	\$35,400
Port Heiden	139,340	\$0.350	\$0.180	Chignik	\$48,800	\$25,100	\$23,700
South Naknek	139,340	\$0.300	\$0.270	Williamsport	\$41,800	\$37,600	\$4,200
Ugashik	8,200	\$0.520	\$0.250	Chignik	\$4,300	\$2,000	\$2,300
TOTALS					\$2,365,900	\$1,560,600	\$805,300

* This cost estimate assumes that a tanker truck with a 7,500-gallon capacity is used.

Table 34
Estimated “Other” Cargo Cost Savings
Scenario 1

Mode Split and Rates Under Existing Conditions										Results		
	Marine %	Air %	Marine (\$/lb.)	Air (\$/lb.)	2020 Freight Volume Estimate (lbs.)	Barge/ Road %	Air %	Barge/ Road (\$/lb.)	Air (\$/lb.)	Freight Costs Paid in 2020 Assuming No Change (\$)	Freight Costs Paid in 2020 Assuming Scenario 1 is Implemented (\$)	Savings Possible due to Scenario 1 (\$)
Chignik	90%	10%	0.250	0.980	648,000	90%	10%	0.220	0.980	\$209,300	\$191,800	\$17,500
Chignik Lagoon	85%	15%	0.500	0.980	1,620,000	90%	10%	0.223	0.980	\$926,600	\$483,900	\$442,700
Chignik Lake	70%	30%	0.600	0.980	1,215,000	90%	10%	0.224	0.980	\$867,500	\$364,000	\$503,500
Dillingham/Aleknagik	75%	25%	0.510	0.420	29,889,000	85%	15%	0.325	0.420	\$14,570,900	\$10,139,800	\$4,431,100
Egegik	55%	45%	0.500	0.670	1,377,000	85%	15%	0.270	0.670	\$793,800	\$454,400	\$339,400
Igiugig	70%	30%	0.765	0.390	729,000	85%	15%	0.297	0.390	\$475,700	\$226,700	\$249,000
Iliamna/Newhalen/ Nondalton	65%	35%	0.765	0.390	5,670,000	85%	15%	0.283	0.390	\$3,593,400	\$1,695,600	\$1,897,800
Ivanof Bay	85%	15%	0.700	1.090	162,000	90%	10%	0.232	1.090	\$122,900	\$51,500	\$71,400
King Salmon/Naknek	75%	25%	0.510	0.420	11,259,000	85%	15%	0.286	0.420	\$5,488,800	\$3,446,400	\$2,042,400
Levelock	75%	25%	0.765	0.390	1,377,000	85%	15%	0.298	0.390	\$924,300	\$429,300	\$495,000
Pedro Bay	60%	40%	0.765	0.390	486,000	85%	15%	0.276	0.390	\$298,900	\$142,400	\$156,500
Perryville	80%	20%	0.600	1.070	1,134,000	90%	10%	0.230	1.070	\$787,000	\$356,100	\$430,900
Pilot Point	40%	60%	0.520	0.780	1,296,000	85%	15%	0.264	0.780	\$876,100	\$442,500	\$433,600
Port Heiden	25%	75%	0.510	0.870	1,377,000	85%	15%	0.238	0.870	\$1,074,100	\$458,300	\$615,800
South Naknek	75%	25%	0.510	0.670	1,377,000	85%	15%	0.286	0.420	\$757,400	\$421,500	\$335,900
Ugashik	10%	90%	0.520	0.780	81,000	85%	15%	0.264	0.780	\$61,100	\$27,7900	\$33,400
TOTALS					59,697,000					\$31,827,800	\$19,331,900	\$12,495,900

Gillnet Fleet Transport Impacts

In its 1995 economic assessment, the US Army Corps of Engineers (USCOE) pointed out another area of savings that could be realized if these improvements were made. They point to the many gillnet vessels that each year make the trip from Cook Inlet to the fisheries in Bristol Bay and back. Some vessels are transported because they spend the off-season in Cook Inlet; others make the trip periodically for repairs and maintenance purposed. In all, about 825 gillnet boats are estimated to make the round trip each year.

Of these, the vast majority (about 785) sail around the Alaska Peninsula, a 1,100-mile trip that takes three days, and is estimated to cost \$1,800. A small contingent (about 40), however, makes the trip via Williamsport, which is almost a thousand miles shorter and is estimated to cost about \$1,233 per vessel. Although this trip is less costly in terms of both time and dollars, it is arduous, risky, and can only be undertaken during narrow time windows. Moreover, many gillnet vessels cannot be transported via this route because they are too wide to pass through existing bridges.

According to the US Army Corps of Engineers' detailed analysis, savings in the neighborhood of \$1,082,500 could be achieved on the part of gillnet vessel movement alone if the Williamsport Channel were dredged, and if the existing Williamsport to Pile Bay Road and its bridges were rehabilitated.²⁰ Accordingly, these estimated savings are added to the freight movement savings estimated earlier.

“Other” Cargo Movement Cost Savings Summary

Total freight movement cost savings under Scenario 1 is estimated at \$14,383,700. Of this total, \$1,082,500 is attributable to gillnet vessel transport savings. To these savings can be added \$805,300 in petroleum movement savings, along with \$12,495,900 in “Other” commodity movement savings (Table 35).

Table 35
Scenario 1
Freight Movement Cost Savings Summary

Petroleum	\$805,300
Gillnet Fleet	\$1,082,500
Other Cargo	\$12,495,900
TOTAL	\$14,383,700

²⁰ According to the USCOE, the number of gillnet vessels taking the Williamsport route would increase from 40 to 747 round trips per year (*Navigation Channel Feasibility Report and Environmental Assessment, Williamsport*, US Army Corps of Engineers, Alaska District, December 1995).

Scenario 2. Final Freight Movement Cost Savings Estimates

If the Williamsport to Pile Bay Road were rehabilitated, in tandem with navigational improvements at Williamsport, it is estimated that most of the Iliamna Lake-bound cargo now barged up the Kvichak River from Naknek would shift to the Williamsport route. In addition, since marine transport under this scenario would be viable from June through November (a much larger portion of the year than is now the case) it is also assumed that a portion of the cargo now flown into Iliamna Lake communities would be barged, trucked, and then shipped again via Williamsport. Whereas the mode split for Iliamna Lake communities is currently estimated to be from 48% to 56% marine via Naknek, from 12% to 14% marine via Williamsport, and from 30% to 40% by air; with the proposed improvements, cargo volumes are assumed to shift to 10% marine via Naknek; 65% marine via Williamsport; and 25% by air.

It is estimated that these improvements would lower the cost of moving cargo to Iliamna Lake communities (via a surface route) from 37 to 24 cents per pound. When the assumed mode shift and rate values are applied to the cargo forecast volumes for the 2020 design year, savings attributable to the project can be calculated, as shown in Table 36. In all, freight movement savings achievable under this scenario are estimated at \$3,554,600 per year. Because these improvements' value would be comparable to that of building the entire Trans-Peninsula Roadway system in terms of allowing gillnet fleet passage across the Alaska Peninsula, the same yearly savings can be assumed for this stand-alone element. Accordingly, \$1,082,500 in gillnet fleet savings can be added to the \$2,472,100 figure for "Other" cargo (Table 37).

Table 36
Estimated “Other” Cargo Cost Savings (Scenario 2)

	2020 Forecast "Other" Cargo (lbs.)	Mode Split, Rates and Costs Under Existing Conditions				Mode Split, Rates and Costs Under Scenario 2				Savings Due to Scenario 2	
		Marine via Naknek	Marine via Wmsport	Air	TOTAL Freight Costs Paid	Marine via Naknek	Marine via Wmsport	Air	TOTAL Freight Costs Paid		
Igiugig											
Mode Split	729,000	56%	14%	30%	\$490,000	10%	65%	25%	\$286,100	\$203,900	
Rate		\$0.765	\$0.370	\$0.640		\$0.765	\$0.240	\$0.640			
Iliamna/Newhalen/ Nondalton											
Mode Split	5,670,000	52%	13%	35%	\$3,798,300	10%	65%	25%	\$2,225,500	\$1,572,800	
Rate		\$0.765	\$0.370	\$0.640		\$0.765	\$0.240	\$0.640			
Kokhanok											
Mode Split	2,025,000	52%	13%	35%	\$1,356,500	10%	65%	25%	\$794,800	\$561,700	
Rate		\$0.765	\$0.370	\$0.640		\$0.765	\$0.240	\$0.640			
Pedro Bay											
Mode Split	486,000	48%	12%	40%	\$324,500	10%	65%	25%	\$190,800	\$133,700	
Rate		\$0.765	\$0.370	\$0.640		\$0.765	\$0.240	\$0.640			
TOTALS					\$5,969,300					\$3,497,200	\$2,472,100

Table 37
Scenario 2
Freight Movement Cost Savings Summary

“Other” Cargo	\$2,472,100
Gillnet Fleet	\$1,082,500
TOTAL	\$3,554,600